The Mining Journal

London, November 8, 1957

In this issue . . .

Does the Little Dog Laugh?	543
Harnessing Canada's Energy Resources ...	544
Indian Mining Leases	545
Green Light for Irish Copper Mines ...	545
World Coal Reserves	545
The Second Coal Preparation Symposium ...	546
Southern Rhodesia's Largest Gold Mine ...	548
Electrically Driven Quarry Plant	549
Machinery and Equipment	551
Mining Miscellany	552
Metals and Minerals	554
London Metal and Ore Prices	555
Mining Finance	556
Company Meetings	557-562
Classified Advertisements	565
Machinery and Equipment Directory ...	(iii)

Vol. 249 **No. 6377**

Established 1835

Joint Editors
U. Baliol Scott R. Bruce Dunfield

News Editor A. G. Thomson

Assistant Editor R. Bowran

Display Advertisement Manager
E. S. Hooper

Circulation
Robert Budd

Published each Friday by

THE MINING JOURNAL LTD.

Directors
E. Baliol Scott (*Chairman*) U. Baliol Scott (*Managing*)
G. A. Baliol Scott R. A. Ellefsen

15, WILSON STREET, LONDON, E.C.2.

Telegraphic Tutwork London
Telephone MONarch 2567 (3 lines)

Annual Subscription £2 10s. Single copy ninepence

Does the Little Dog Laugh?

ROUND and round the world goes space-dog Laika, hurtling through the sky at thousands of miles an hour. What does this little husky (whose name and sex still seem to be matters of some uncertainty in the Western world) think about during her historic circumperambulations? Does she laugh, one wonders, as Sputnik II flashes over the United States and observes the vast stockpiles of materials which Uncle Sam has accumulated to safeguard himself against interruption of essential supplies in the event of global war?

The appearance in the firmament of Sputniks I and II—doubtless but the forerunnners of bigger, better and more militarily valuable spaceships—is resulting in a further agonizing reappraisal of the U.S. stockpiling programme — now even more of an anachronism than before.

According to the latest report from New York, administration planners now believe that in the event of all-out war, provision should be made for a three-year emergency, instead of the earlier target of five years. To a little dog accustomed to spanning the entire globe over and over again in a single day, planning for a three-year war is about as realistic as sending up troops in balloons to shoot down Sputniks with bows and arrows.

Let us not underestimate the importance of the traditional materials, which are as basic to the production of guided missiles and spaceships as are the so-called newer metals. Unfortunately for mineral and metal producers, however, it has become still more difficult for Uncle Sam to find any convincing reason for adding to his $7,500,000,000 stockpile which, it is believed, already has more than enough of the most essential items to see the United States through an emergency lasting three years.

To step up its guided missile programme and forestall the Russians in what at present appears to be a race to drop the first hydrogen bomb on the moon, the United States will presumably need large quantities of boron or lithium for the production of chemical fuels. But here again, there is little point in building up huge reserves when a third world war, if it arose, would be over in a matter of weeks, days—or even hours. There is nothing lethal about little Laika, but it seems probable, so rapidly is the conquest of space proceeding, that we may soon be encircled by satellites manned not by inoffensive and silently enduring huskies, but by human crews with push-button control over very terrible forces of destruction.

Stockpiling, let's face it, has now become essentially a matter of domestic rather than strategic policy, with the purse-strings held by an economy-minded Congress. Though final decisions will probably not be made until next year, the chances that the U.S. Government will enter into further argeements to expand the existing stockpile are slim indeed. It looks, therefore, as though producers must console themselves with the reflection that bad might be a good deal worse, in that disposal of the stockpiled materials requires Congressional sanction and must also be undertaken in conformity with O.D.M. regulations, stipulating that it should not disrupt or interfere with the orderly processes of the

market. Thus, if the stockpile has ceased to be a fairy godmother, at least it constitutes no immediate threat to the metal markets.

From the producers' standpoint the appearance of a second dog star in the heavens might conceivably turn out to be quite a propitious phenomenon. It is possible that by serving as the starting gun for the space race, the involuntary passenger in the Sputnik may have given a much-needed tonic to the flagging U.S. economy, thereby triggering off a new wave of business activity and revitalizing the mineral and metal markets.

And this, if the little dog has a sense of humour, will give it the biggest laugh of all!

HARNESSING CANADA'S ENERGY RESOURCES

The appointment of a Royal Commission, under the chairmanship of Mr. Henry Borden, to make recommendations for a national energy policy for Canada, could have a considerable impact on the future expansion of the Dominion's rapidly growing mining and metal industries. Apart from the gains in mine production costs, the availability of low-cost power on an abundant and increasing scale may be expected to stimulate the development of industries based on the processing of domestic ores. The Dominion's ambitious energy projects are basic to the more intensive exploitation of ores and minerals currently being exported in raw or semi-processed form.

Canada's energy plans fall into two separate categories, which for geographical reasons appear to be largely complementary. In one category is the development of the oil and gas resources: in the other, the construction of hydroelectric undertakings.

Last month natural gas started flowing through the Westcoast Transmission Co.'s 650-mile pipeline from the Peace River area to Vancouver and the U.S. border, marking the long-awaited beginning of the large-scale exploitation of Canada's gas. Within a year, a throughput of 400,000,000 cu. ft. daily is expected to feed markets in British Columbia and the U.S. Pacific Northwest. The Trans-Canada Pipeline recently recorded its first sales of Albertan natural gas, which were made in Winnipeg, Manitoba. By the end of this year Trans-Canada expects to begin sales as far east as Port Arthur, Ontario. It is anticipated that by next autumn this 2,294-mile line will be in use throughout its length.

Prospects for the Canadian gas industry have been continually improving as estimates of demand proved to be unduly conservative. On present demand indications alone, Trans-Canada expects by 1963 to sell twice the 540,000,000 cu. ft. daily now authorized. Well before its pipeline started deliveries last month, Westcoast Transmission brought forward plans for an increase of 65 per cent in capacity.

The opening-up of Canada's proved reserves of natural gas, now estimated conservatively at 27,000 trillion (i.e., million million) cu. ft. promises growing supplies of this cheap and highly convenient fuel in many parts of the country. The fast-expanding West, the little developed areas in northern Ontario, where gas will enable considerable mineral resources to be exploited, and the main industrial regions of Toronto and Montreal, will each benefit greatly from the availability of this new source of energy.

Spectacular developments in the hydroelectric field have already taken place. In fact, during the past 10 years installed hydroelectric capacity in Canada has increased by more than three-quarters to over 18,000,000 h.p. The International Rapids section of the St. Lawrence Seaway, where the power authorities of Ontario and New York are building twin power plants, represents the last major source of hydroelectric power in southern Ontario, now that the Canadian share of the Niagara Falls potential is being fully realized. Development of big hydroelectric sites within reach of settled areas has taken place elsewhere as well. As the Bank of Nova Scotia pointed out, in its latest *Monthly Review*, projects of this type span the country, from the Bridge River development in southern British Columbia to the smaller Beechwood installation on the St. John River in New Brunswick.

This type of development has been accompanied in recent years by the exploitation of water-power resources in remote areas, the outstanding (and best-known) example being the Kitimat-Kemano project on the northern British Columbia coast. Like Knob Lake on the other side of the Continent, it involves the large-scale development of a long-known resource in response to a strong demand for the end-product—in this case aluminium. If present plans are realized, installed hydroelectric capacity will have doubled to 900,000 h.p. by 1960.

Rising aluminium demand has also led to a sharp expansion in Quebec of both smelting capacity and the requisite power facilities. The long-established industry in the Saguenay Valley is pushing further into the north with the building of a 1,000,000 h.p. hydro plant on the upper Peribonca River about 100 miles from the Arvida smelters. Another river on the north shore of the St. Lawrence, the Manicouagan, will provide power for a smelter at Baie Comeau.

In the wilds between Baie Comeau and the Peribonca lies the huge Bersemis River power development, undertaken to meet the growing requirements of Quebec's industry. Power from the first of the two plants now under construction—which will have a combined capacity of 2,000,000 h.p. — is already flowing to Quebec City and Montreal via a 450-mile transmission line, and also to the Gaspé Peninsula by means of 32-mile cables under the St. Lawrence River.

The principal undeveloped resources of hydroelectric power lie in British Columbia, where at least three rivers —Columbia, Peace and Fraser—are potentially suitable for harnessing. There has been a long-standing difference of views on sharing between British Columbia and the U.S. Pacific-Northwest the power which could be developed by damming the Columbia River, which has its headquarters in Canada and its estuary on the U.S. Pacific Coast. Proposals for the hydroelectric development of the Fraser River met with widespread opposition, because the Canadian salmon industry, estimated to be worth $55,000,000 a year, is centred on this river.

Attention has accordingly been directed to the Peace River, for which a vast hydroelectric project is to be undertaken, as announced in London on October 9 this year. It was proposed in a report submitted by the British Thomson-Houston Co., who had been engaged to survey the hydroelectric potential of the area, that a dam should be erected across this river, which would create the largest artificial lake in the world, reaching 260 miles down the Rocky Mountain Trench toward Prince George. It was estimated that the lake would take seven years to fill and that it would generate 4,000,000 h.p. of electricity for distribution throughout British Columbia and also into Alberta and the U.S., if required. Capital is expected from Canadian, British and Continental European sources and it is anticipated that power will be delivered by 1964.

As at present envisaged, this scheme will make some 2,000,000 h.p. of electrical power available to the metallurgical industry, at a cost per unit lower than that for

any development at present in operation. This should lead to further major expansion in the metal industries of British Columbia, which is already Canada's largest producer of lead and zinc, its only source of tungsten, antimony and tin, a major producer of copper, and a world source of aluminium produced from imported ores.

At a recent meeting of the Canadian Chamber of Commerce, Mr. Philip M. Talbott, president of the Chamber of Commerce of the U.S., urged the desirability of Canada and the U.S. carrying out integrated joint development of hydro power, flood control, and other projects on the Columbia River and its tributaries. He also suggested a joint study of the hydroelectric possibilities of the Yukon River Basin in Canada and Alberta.

INDIAN MINING LEASES

The Government of India has suggested to State Governments that they should grant mining leases to private parties for isolated patches of minerals under Schedule A of the Industrial Policy Resolution, 1956. These patches must first be shown to be unsuitable for State exploitation as envisaged under that resolution.

Minerals included in Schedule A of the resolution are coal and lignite, iron, manganese ore, chrome ore, gypsum, sulphur, gold, diamonds, copper, lead, zinc, tin, molybdenum and wolfram ores.

The step has been taken by the Central Government in view of the "extreme urgency" of increasing India's foreign exchange earnings. The State Governments have been requested to expedite action on pending applications, especially in regard to iron ore and manganese.

Meanwhile, India's search for minerals continues apace and is yielding encouraging results. A recent report refers to copper ore, lead ore, iron ore, gypsum, marble and magnesite as being among the important minerals found in Uttar Pradesh, according to surveys carried out by the Geological Survey of India and the Directorate of Geology and Mining, of the State of Uttar Pradesh.

Surveys have revealed the presence of copper ore in Ghirauli, Almora district. Old copper mines are known to exist in the Kumaon and Garhwal districts at a number of places along a belt of about 80 miles. The metal was extensively mined in ancient times.

Lead ore (galena) is found in Garhwal district. Samples of lead ore collected by the Directorate from Gwar village near Dhanpur have yielded a good percentage of lead. GSI has recommended excavations of old workings in this area in order to locate the lode.

Native sulphur has been found in the Roopgana valley about 32 miles east of Nandprayag (Garhwal district).

According to estimates made by the Geological Survey of India about 20,000,000 tons of magnesite are available from the Almora district

GREEN LIGHT FOR IRISH COPPER MINES

It would be surprising if there was no uneasiness in the Land of the Shamrock regarding the possible effects of the sharp fall in base metal prices on current plans for revitalizing and expanding the mining industry. Particularly welcome, therefore, must be the encouraging report submitted by Mr. J. D. McCannell, consultant geologist, following a 12-days review of the progress of the Emerald Isle Mining Co. Ltd., a subsidary of Can-Erin Mines of Toronto, Canada, in its operations at the Allihies Copper Mines, West Cork.

The report states that the ore in the Allihies area lends itself to selective mining. This factor would allow the management to cope with present downward fluctuations in the price of copper. A sample from this area shipped to the United States for metallurgical tests showed that no metallurgical problems would be encountered in treating the ore, and that only a simple flotation process would be required to produce a high-grade copper concentrate.

Mr. McCannell reported that further proof had been obtained that the grade of copper in the old mine workings was improving with depth. It was now within reason to anticipate 1,000,000 tons of recoverable ore in the immediate vicinity of the Mountain Mine workings. This did not take into account that the ore shoot probably extended well below the deepest levels worked by the former operators, and also that parallel ore structures might be encountered which could be worked from the Mountain Mine. The Commonmoor lode, it was added, which is located 500 ft. north of the Mountain Mine, was ample indication that parallel ore structures did exist in the immediate vicinity.

Regarding excavation plans, Mr. McCannell recalled a cave-in in 1876 when the previous operators were forced to stop operations in the Kealoge workings. This mine was described in old reports as the richest in the area. The report says that a cross-cut to the Kealoge mine, now planned, would run at a depth of 2,500 ft. from the Mountain Mine and would intersect the ore structure 800 to 1,000 ft. below the bottom of the deepest workings of previous years. It would be below the cave-in encountered at higher levels by the previous operators.

The Emerald Isle Mining Company began operations in the West Cork holdings almost two years ago, and after dewatering operations had been completed excavation work was commenced. No ore has yet been mined there.

WORLD COAL RESERVES

Figures purporting to give the world's fuel resources are so often shrouded by ifs, buts and revisions as to be of limited use. However, a recent paper by M. J. Ventner, of the Belgian mining research unit, does at least give the most up-to-date data regarding the world's coal reserves. Salient figures from this report are as indicated, and as will be seen there is no cause for alarm. Indeed, coal reserves even in the major producing countries are such that long before they are depleted coal will have ceased to be a basic fuel.

	Present annual output in millions of tons	*Estimated life in years of reserves at current extraction rate*
Pool countries	330	470
Great Britain	220	740
Poland	96	1,100
Canada	15	4,600
U.S.A.	490	4,600
China	80	12,500
India	40	1,700
U.S.S.R.	400	3,000

In addition to those countries which have appreciably large and established coal mining industries, there are many vast deposits relatively untouched. For example, Alaska and Columbia, with negligible outputs, have reserves of 60,000,000,000 and 12,000,000,000 tons respectively.

THE SECOND COAL PREPARATION SYMPOSIUM

622.7-333

The second Symposium on Coal Preparation, jointly organized by Leeds University Mining Department and the Coal Preparation Plant Association, opened on Monday of last week. In his formal opening speech, the Guest of Honour, Mr. H. E. Collins, C.B.E., M.Eng., M.I.Min.E., member of the National Coal Board, drew attention to the changes in the coal picture since the first Symposium in 1952. Then the overriding need was for production. Now, although production is still vital, great attention has to be paid to quality. The size of coal produced is also of the utmost importance and the most urgent problem is the avoidance of breakage and the production of more graded coal. Much of the breakage of coal is, of course, due to mechanical mining and although the Board intends to continue its mechanization programme, much more attention will be paid to the type of machine, and except in special cases such as coking coal, machines producing high percentages of fines will not be used. Another vital problem is the utilization of smalls of low rank. Much work is being done on development of methods for turning these into smokeless fuels and it is quite essential that more use be made of this type of material. The technical sessions of the Symposium were held over three days, a total of 18 papers being presented and discussed.

THE first paper presented at the Symposioum was on "Possible Changes in Coal Preparation Pattern" by Mr. G. H. Arrowsmith, divisional coal preparation engineer, West Midlands Division, N.C.B. Mr. Arrowsmith reviewed the changes taking place in coal preparation, one very obvious one being the steady increase in the percentage of small coal. In one example given, the amount of $-1\frac{1}{4}$ in. coal produced when a Disc Shearer was introduced increased from 34 per cent run of mine to 71.4 per cent. Other machines produce less fines but in all cases mechanical mining has produced degradation. Many existing plants are not equipped to handle this excess of smalls, particularly when the increase can take place almost overnight. Mr. Arrowsmith gave some examples of the methods used by coal preparation engineers to overcome these difficulties, but pointed out that another trouble is the problem that exists in the selling of small coal of low rank.

It seems likely that it will become increasingly important to produce small graded coal of low ash content for use in the manufacture of smokeless fuel. It is also very likely that steps will be taken to recover as a high ash middling, much of the combustible matter now sent to refuse. This will presumably be done by dense media operating at a density of about 2.0.

In the discussion it was pointed out that the recrushing and recycling of middlings did not necessarily solve the problem as some middlings were crushed only to smaller middlings. This might be overcome in some cases by making a four-product separation.

Reducing Washed Coal Moisture

The second paper, "The Reduction of Moisture in Washed Coal", by Dr. D. A. Hall and Mr. H. MacPherson of Durham Division, N.C.B., followed logically on the first paper and discussed one problem mentioned by Mr. Arrowsmith. As the quality of Durham carbonization coals is declining it is now often necessary to wash them and this has led to difficulties in handleability and also in coking and gas making.

The paper gives preliminary results of the research carried out by Durham Division, N.C.B. It seems that drainage and centrifuging is reasonably successful with sizes larger than 1/50th in. but for smaller sizes, such as flotation concentrates, other methods must be used.

The authors comments in the various methods tried may be summarized as :—

Thermal Drying : A pneumatic dryer was used and some mechanical difficulties were encountered. It seems probable, however, that this method will be satisfactory.

Convertol Process : A pilot plant has been built and preliminary experiments are promising.

Mechanical Dewatering : A pressure machine is being built.

Addition of Chemicals : Plant tests have not so far been satisfactory.

Special Centrifuges : Little improvement so far.

Alteration of the Physical Characteristics of the Mixture, by adding a small quantity of oil. This seems to be a promising field.

The conference then moved from practice to theory to hear Mr. C. C. Harris, of Leeds University, discuss his paper on "Moisture Retention of Fine Coal". He summarized the principles involved in studying this problem and suggested methods of measuring moisture retention properties. There was little discussion.

Mr. F. H. Price, chief scientist of S.E. Division, N.C.B., returned to practical matters with his paper on "Automatic Sampling" which gave results of tests on various types of samplers. It was clear that these were as accurate as best hand-sampling and substantially better than average hand-sampling. Mr. Price appealed to designers of plants to leave room for automatic devices as one of the great problems was fitting these into older plants. The audience agreed that these machines were valuable but there was a suggestion that sampling points should be carefully chosen and not allowed to spread all over the plant.

In the afternoon, Mr. C. C. Dell's paper on "The Future of Froth Flotation" aroused a great deal of interest. Mr. Dell, who is the head of the materials separation section at Stoke Orchard, looked at coal flotation from the mineral dressing angle and suggested some of the defects in the present methods of floating coal. It seems likely that flotation will increase for the preparation of coking coals but unless improvements can be made it is unlikely that other coals will be able to be floated economically. Suggestions made by Mr. Dell included new machine design, more use of multi-stage flotation, more instrumentation and control and the reduction of quantity to flotation by the use of gravity process down to 60-mesh or thereabouts. Mr. Dell felt no suitable gravity process was available.

The audience seemed to feel that there was a great deal in what Mr. Dell said but one speaker pointed out that it was easier to state the problem than to solve it. It was also pointed out that there were at least three processes, dense media separation, tables and dense media cyclones, entirely satisfactory down to 60-mesh and that the more widespread use of these processes might solve many of the flotation problems. It was agreed, however, that much fundamental work on coal flotation remains to be done. The last paper of the day was on "Briquetting Practice in Germany", by Dr. Hermann Meyer. It gave a detailed account of modern German practice.

The Second Day

The second day started with Dr. D. A. Dahlstrom's paper on "Closed Water Circuits". Mr. Kirkup, presenting the paper, discussed the differences between U.S. practice as mentioned by Dr. Dahlstrom and current British practice. It appeared from the discussion that British practice was at least level with American.

Mr. Harris then presented two further theoretical papers, one on size distribution and one on the practical applications of his previous paper on moisture retention.

Dr. P. G. Meerman, of the Dutch State Mines, returned to practice in his account of "Experiments with Interface-Active Chemicals". The use of these chemicals has been extensively studied by the Dutch State Mines and it appears that some of them can be highly successful in filtration and water clarification. Dr. Meerman stressed, however, that a great deal of experimental work is required to determine the best reagent to use for any particular problem and said that in some cases starch was more economical than any other reagent.

More information on overseas practice was given by Dr. P. J. Van der Walt of the South African Fuel Research Institute. Although the paper was entitled, "Materials available in South Africa for use as Dense Media", Dr. Van der Walt discussed general South African problems and delegates were particularly interested to learn that the pit-head price of best grade coal in that country was only about 11s. per ton. In spite of this low price, preparation of the coal was often necessary but obviously the most economical methods must be used. It appeared that dense media separation with magnetic recovery of medium was the most suitable. In the discussion the question of demagnetization of medium was raised and two directly opposite opinions were expressed; one leading plant manufacturer saying that demagnetization was essential and another pointing out that none of their many operating plants used this process, so that it was not necessary.

Dr. A. Jowett, of Leeds University, who was until recently attached to the Coal Research Station, New South Wales, gave a very interesting paper on "Coal Preparation in Australia". At present virtually all the preparation plants in Australia are in New South Wales and even in this State the number of plants is relatively small. Australian coal is generally substantially higher in ash content than British coal and there is a considerable proportion of non-removable ash. The bulk of the coal has a specific gravity of between 1.3 and 1.4 and the separation at less than about 1.5 sq. is nearly always difficult. Dense media washing would appear to be best.

A variety of types of plant has been installed in Australia and much interest is now being shown in Deister tables for washing the smalls.

The day ended with a paper on "Particle Bubble Attachment in Coal Flotation", by Smith, Abbott and Frangiskos of Leeds University. Illness prevented Mr. H. G. Smith from being present and his paper was given by Mr. Abbott who discussed previous work on this subject and then described experimental work on bubble stability and growth upon surfaces. As a result of this work the coursing bubble theory was examined, and it appears from the investigation that a cell shallower in depth than normal may prove advantageous.

In the discussion, several members of the staff of Stoke Orchard mentioned similar work being done there but it appeared that the results obtained were somewhat different. It seemed possible to obtain entirely opposite results from the same data.

The Third Day

On the third day the proceedings opened with a paper entitled, "The Performance of Coal Preparation Plant", by Symington, Higginbottom and Armstrong. The authors suggested a new form of guarantee independent of cut-point or coal quality. Although the paper mentioned "plant" generally, the comments applied almost exclusively to jig plants and, as was pointed out in the discussion, most of the remarks do not apply to dense media plants. The method of guaranteeing the performance of these was sufficiently simple and accurate to preclude the necessity for any change.

A paper by Elms, Needham and Worthington pointed out the need for more frequent comprehensive testing of coal preparation plants and stressed the advantages to be gained by carrying out these tests regularly. It was generally agreed that these tests were valuable but several speakers pointed out the difficulty in obtaining the staff necessary to do the work.

A further theoretical paper, "Further Contact Angle Studies at Coal Surfaces", by Smith and Duckmanton of Leeds University, was an account of an investigation carried out to prove some of the theories advanced by Mr. Smith in a paper written in 1951. The present experiments seem to show that objections to the previous paper were unjustified. Some of the participants in the discussion were not entirely convinced of this and again work reported by others seems to point to different conclusions.

In the afternoon a film and paper on jig washing was followed by a paper on traffic control.

The conference closed on Friday morning.

CAM AND MOTOR—I

Southern Rhodesia's Largest Gold Mine

The Cam and Motor Mine is situated at Eiffel Flats, in the Hartley district of Southern Rhodesia. The mine lies 4½ miles East-North-East of the town of Gatooma, to which it is connected by an all-weather strip road and a branch line of the Rhodesia Railways. Besides being the deepest mine in the Federation of Rhodesia and Nyasaland (5,855 ft. at June, 1957), the Cam and Motor Mine, with an average monthly output of 8,000 oz. from 24,000 tons crushed, is also the largest gold producer.

THE first pegging on the site of the Cam and Motor Mine took place on December 22, 1890, less than four months after the Occupation of Mashonaland. Named Eiffel, Reg. No. 100, the block was registered by Leander Starr Jameson (Dr. Jim).

In the years following, several other blocks were pegged by various pioneers, but with the exception of the Selous Syndicate's Good Shepherd, which has remained current ever since, all went to forfeiture in 1904 and were re-pegged under new names by Cameron and Campion in 1905.

Cameron's holding, the Cam, Petrol, and three adjacent blocks, were sold to the Yellow Jacket Syndicate in 1907, the Cam Mine going into production in the same year and continuing until 1908. In 1909 this group was acquired by the London and Rhodesian Mining and Land Co., Ltd.

Later in the same year, Lonrho, which had also acquired Campion's Motor Mine (which had been in production since 1907), as well as several adjacent blocks held by a variety of prospectors, sold the entire group of claims to the newly-formed Cam and Motor Gold Mining Co. Ltd. In 1911, the Good Shepherd block, which had passed to the United Rhodesia Goldfields, Ltd., in 1907, and had been in production from 1908 to 1910, was purchased by the new company.

Production from the Motor Mine was maintained by the new company on an experimental scale during 1911 and 1912, after which there was a break for extensive development and plant reconstruction which lasted until 1914, when company operations proper can be said to have begun. Operations continued under difficulties during World War I until 1919, when there was a further shutdown until 1921.

In the interim, further exploration and development to build up ore reserves were carried on, additional plant was erected and the company, as part of the "Bailey Group", was reconstituted as the Cam and Motor Gold Mining Co. (1919) Ltd., under which style production has been continuously maintained until the present. Forty-six blocks were sold by the old company to the new. Now, the company, which has recently purchased Railway Farm No. 11, on which the majority of the claims are located, holds title to 90 blocks totalling 886 claims, covering 1,831 acres, as well as two tailing sites, one pebble site and a residential site.

Blanket tables and part of the reduction plant at the Cam and Motor gold mine, Southern Rhodesia

OUTPUT FROM ALL SOURCES TO DECEMBER, 1956

Producer	*Date*	*Tons*	*Ozs.*	*Rec. Gold dwt./ton*
Cam Mine	1907–08	24,903	6,753	5.42
Motor Mine	1907–12	16,654	7,047	8.46
Good Shepherd Mine	1908–10	25,432	7,659	6.02
Cam & Motor G.M. Co., Ltd.	1914–19	691,226	239,990	6.94
Cam & Motor G.M. Co. (1919) Ltd. ..	1921–56	9,561,860	3,312,121	6.93
		10,463,575	3,573,570	6.83

The original connection with the London and Rhodesian Mining and Land Co., Ltd., has been maintained through the years, the parent company acting as Consulting Engineers, Secretaries and Buyers. The head office of the company was transferred from London to Salisbury in 1940.

Geology

The rocks of the area, which belong in the basement schist series, are mainly altered Bulawayan greenstones derived from primary basaltic lavas, with intruded doleritic greenstones. Included in this formation are minor lenses of interbedded sediments consisting principally of felspathic grits (arkose or graywacke) with bands of shale and slate. The complicated lode system of the Cam and Motor Mine has developed in relation to one of these lenticular bodies, the lens, in fact, being a series of disconnected fragments.

North-South lode systems lying actually in the sediments (i.e., the various Motor Lodes) are undoubtedly the mineralization source-channels for all the other lode systems and continuity of this system to great depths is likely.

The lodes are composed of parallel bands of quartz varying from clear white to almost black with mineralized country rock between bands. Predominant minerals are pyrite and arsenopyrite with some stibnite, while visible gold is frequently seen. The lodes in the sediments contain more pyrite than those in the greenstones, while the greenstone lodes contain more arsenopyrite and stibnite. The

North-South lodes also exhibit copper and zinc mineralization (bornite, chalcopyrite and sphalerite) which is absent in the East-West lodes.

The Motor Lode appears as a single orebody from surface to the 15th Level, although, in fact, it is two separate lodes occupying the same channel, the Motor-Centre Lode lying to the south of the Motor proper. The Motor splits on the 15th Level into the Motor Hanging-wall and Foot-wall Lodes, the Centre Lode occupying the parting between the two limbs and continuing without interruption to the 40th Level, while the Hanging-wall Lode bottoms on the 21st Level and the Foot-wall Lode on the 23rd. On the east or foot-wall side of the Foot-wall Lode, the Foot-wall "A" Lode develops as a spur on the 18th Level, the Foot-wall "B" Lode apexes to the east of the Foot-wall "A" on the 20th Level and the Foot-wall "C" Lode appears further east still on the 22nd Level. The Foot-wall "C" Lode bottoms on the 28th Level but the Foot-wall "A" and "B" Lodes are still in place on the 40th Level.

The average width of the Motor Lodes is 15 ft. above the 15th Level and 7 ft. below this horizon, all other lodes averaging about 5 ft. The dip of the Motor in common with other North-South Lodes is steep, 80 deg. to 90 deg., as opposed to the flatter, average 70 deg. dip of the East-West Lodes. Unlike the East-West Lodes, which have a fairly uniform pitch to the West of 75 deg., the Motor and other North-South Lodes change pitch from southerly in the upper levels, though vertical in the centre of the mine, to northerly in the lower levels.

General Scheme of Expansion

In 1953, following new lode discoveries as a result of intensive development prospecting, and a favourable geological assessment of probable ore persistence at depth, a new programme of expansion was embarked on. Basically this was a scheme of shaft-sinking and further lateral development necessitating a completely new ventilation system to cope with anticipated temperature conditions at depth. To offset capital charges and probable future cost increases, measures to improve underground operating efficiency by increased mechanization were included and improvements in and modifications to metallurgical technique planned. In turn the need arose for additional workshop and store facilities to handle the construction programme. Finally, to ensure a suitable stable labour force, additions to African and European housing and amenities were included.

This capital programme, begun in 1953 and estimated to cost just under £1,000,000 is, with the exception of the final stages of the ventilation programme and development at depth, which will continue for some years, now nearing completion.

Shafts and Hoisting

The mine is served by six shafts, four from surface and two internal. Of the surface shafts, the Petrol Shaft serves only the 2nd Level Petrol for pumping and ventilation purposes, while the Good Shepherd Incline Shaft is maintained for travelling in the upper levels of the Cam Lode only. All hoists are double-drum, fitted with dial-type depth indicators and Lilly Controllers, and cages and skips are fitted with Humble-hooks and safety dogs. Motor voltage is 550 v. for surface hoists and 2,200 v. for internal hoists. All ore is hoisted through the Main and Sub-Vertical shafts, waste being handled through the Circular and Sub-Circular.

The Sub-Vertical shaft, sited midway between the Main and Circular Shafts, has its hoist chamber on 29 Level and bank on 30 Level, whereas the Sub-Circular Shaft has both its hoist chamber and bank on 32 Level with an inclined rope-race connection.

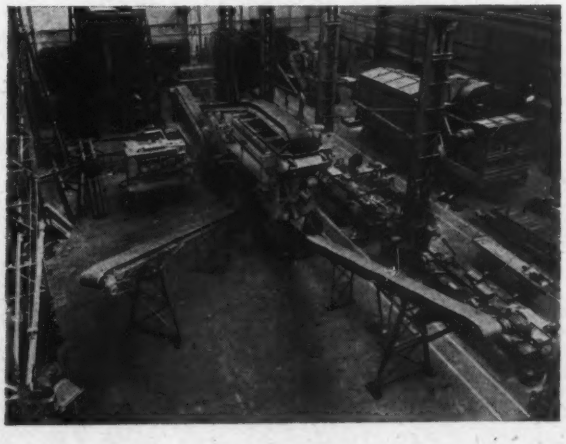
Electrically Driven Quarry Plant

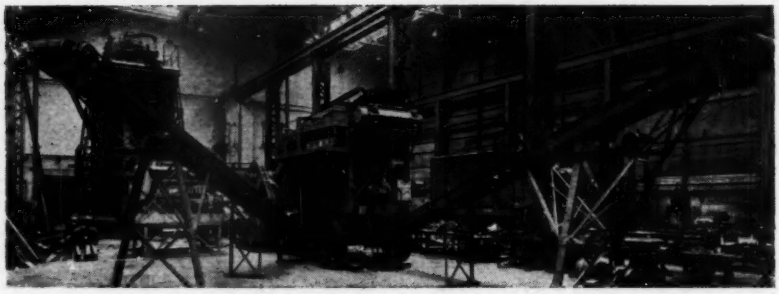
BEFORE the Goliath crushing, washing and screening plant was introduced recently by quarry equipment manufacturers, Goodwin Barsby & Co. Ltd., smaller designs of mobile plant had always been mechanically driven from a diesel engine power unit. Such a driving arrangement had been proved to be quite satisfactory for the sizes of plant hitherto produced, but with the development of the larger, higher working capacity Goliath, a number of problems arose, which precluded the use of a mechanical drive system in favour of one incorporating electric motors.

One of the principal factors which affected the design, was the need to ensure that axle loadings and dimensions of the plant would conform with transit regulations in various parts of the world. Consequently, with the magnitude of the essential items of machinery in mind (the Goliath has an output of up to 150 tons of sand and gravel per hour, assuming that a maximum of 25 per cent of the feed material requires crushing) it became apparent that the heavy gears and shafting normally associated with mechanical drives were totally undesirable. Moreover, it was also found necessary to design the plant as three main separate units—the power pack, the feed hopper and a main crushing and screening unit, with necessary distributing and feed conveyors—the result being that the usual form of drive was again considered unsuitable, as it would not be sufficiently flexible to facilitate ready assembly of the plant as a whole.

Both of these problems, it was considered, would most satisfactorily be solved by using electric motors to drive the smaller and more distant items of machinery, with the main power for driving the heavy crushers being taken direct from a diesel engine. In deciding on such a system,

The Goodwin Barsby electrically-driven quarry plant





Alongside, the Goliath quarrying plant in the Goodwin Barsby works assembled for despatch. Below is the power pack, with control board housing motor starters, etc., in rear, mounted on the chassis of the main plant

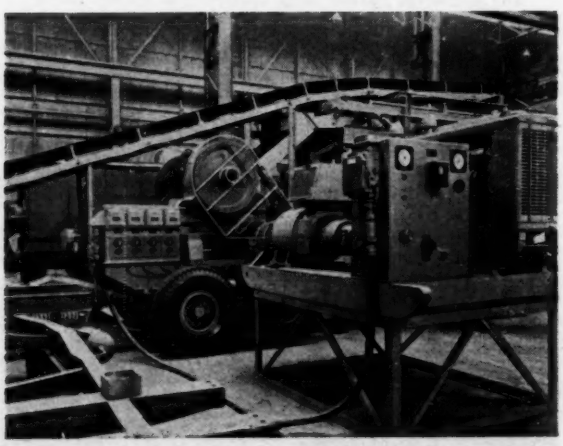
moreover, the manufacturers were also to gain the advantages of a tidier and less bulky driving arrangement, conveniently controlled and providing good accessibility for servicing.

Consulted in connection with the design of the electrical system, and ultimately commissioned as contractors for the supply of electrical equipment, wiring and connecting up, the contract department of Crompton Parkinson Ltd., had to make provision for a total of eight individual drives.

The feed-hopper section, which is skid mounted and suitable for carriage on a low loader, comprises a large hopper over which is mounted a grid to reject material over 8 in. in size, and a variable stroke reciprocating tray feeder. For the feeder drive a 3 h.p. motor is employed.

Material from the hopper unit is fed to the main crushing and screening plant (which is carriage mounted and capable of being towed at 20 m.p.h.) on a 30 in. wide troughed belt conveyor, 55 ft. between pulley centres. For this drive a 5 h.p. motor is used, the motor drive being effected at the head pulley through a shaft-mounted gear unit. From this conveyor the material drops into the feed-box of a 12 ft. by 4 ft. vibrating screen, which has two full length decks and a half length drop deck, giving three screen sizes of material which are stockpiled from distributing conveyors. Here a 7½ h.p. motor is installed to drive the screen mechanism through short vee-belts, and individual 3 h.p. motors shaft-mounted gear units are employed to drive the distributing conveyors.

The largest rejects from the screen, which incidentally can be fitted with a spray bar attachment for washing the material if desired, are fed to a 36-in. by 10-in. single-toggle roller-bearing jaw crusher, and similarly, the next sized rejects are gravity fed to a 2-ft. cone crusher, both of which units, as already mentioned, are coupled to the main shaft of the power pack prime mover.



Crushed stone is returned to the feeding end of the plant for re-circulation, and subsequent re-screening by two 24 in. wide conveyors, the first operating at 15 ft. pulley centres, and the second at 24 ft., these units being driven by 2 h.p. and 3 h.p. motors respectively.

The power pack section comprises a 150 b.h.p. Dorman diesel engine, an alternator (driven by vee-belts from the engine's power take-off shaft), and the alternator control panel. For the particular plant that has already been built and commissioned, the Crompton Parkinson alternator has an output of 41 kVA. and is of a conventional design with an Isenthal A.V.R., whilst its control panel incorporates an air circuit-breaker, voltmeter, ammeter, selector switch, field regulator and, in compliance with mine and quarry regulations, an earth leakage trip.

The Control Board

The control board for the motors of the actual crushing and screening plant is mounted on the chassis of the main plant, the power supply from the alternator being effected through a trailing cable having suitably interlocked plug and socket facilities.

The control board panel is fitted with four Allen West flush mounted direct-on-line starters with combined isolators, and is provided with sequence interlocking and four triple-pole switch-fuses. The starters control the motors for the main return conveyor that is connected to the feed-hopper unit, the return conveyor beneath the crushers, the screen, and the main feed conveyor, the sequence interlocking ensuring that they can be started only in the order given. In the event of any one of the starters tripping, all those on the right-hand side of it will automatically trip out, thus preventing a pile-up of material.

The four switch-fuses control the supply to four isolators with inter-locked plug and socket outlets. One of these outlets, that for the supply to the feeder tray motor, is located on the feeder unit and facilitates disconnection when the feed-hopper unit has to be separated from the main plant for transit purposes. The other three outlets are positioned at convenient points round the plant to feed portable loading conveyors.

Cabling and wiring, which was with Crompton cables throughout, comprised 7/.029 and 3/.036, 3-core cable, v.r.i. steel wire armoured and served overall for the fixed wiring, and for the trailing cables .1 sq in. 160/.029 (main) and .0048 sq. in. 110/.0076 (feeders) 4-core circular v.r.i. tough rubber-sheathed galvanized steel strand armoured and tough rubber-sheathed overall.

Electric motors have undoubtedly played an important part in making this large mobile quarrying plant a practicable proposition. These new Goliaths—which represent a notable step forward in design—are already in operation.

Machinery and Equipment

Scaffold Indicator for Shaft Sinking

An automatic system of informing the winding engineman of the depth of the sinking scaffold during shaft-sinking operations has been devised in Britain. The idea is to superimpose on the sinking winding engine depth indicator a second pointer to represent the position in the shaft of the sinking scaffold. This second pointer is coupled by a flexible shaft to the scaffold winch drum. The pointer is driven through two gear boxes, one of which is located at the end of the winch drum shaft and the other behind the depth indicator. The gear ratios of these two boxes are adjusted so that the pointer of the scaffold indicator moves to the same scale as that of the winding indicator.

The indicator makes an important contribution to the safety of men engaged in shaft sinking, as by giving automatic indication of the position of the scaffold to the winding engineman it guards against the accidental striking of the scaffold by the hopper.

A RANGE OF V-BELTS

Any V-belt tends to dish under load. In conventional laminated V-belts this often reduces sidewall pressure because of lateral stiffness. The lateral stiffness of the Texrope Grommet belt manufactured by Frank Wigglesworth and Co. enables it to settle into pulley grooves under load even though the top dishes. By this means the Grommet V-belt maintains its grip.

Again, shrinkage of V-belts is caused by moisture absorption of cords. In the Texrope belt the endless grommets are deep-set in solid rubber that protects them against moisture penetration and ensures length stability.

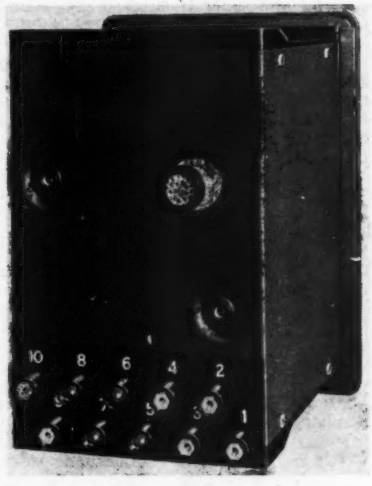
Because the belt load is carried in grommets cushioned in solid rubber, there are no layers of cord to rub against each other and thus cause frictional heat as the belt travels around the pulleys.

These belts are claimed to have a low stretch under load and to enjoy 20 to 50 per cent longer working life, as well as high shock load capacity.

NEW RELAY CASES

The English Electric Co. is now manufacturing two new types of relay case, one a dustproof case, and the other a completely sealed case. Statistics show that the majority of relay faults can be traced to handling or the effect of foreign particles and corrosion. These relay cases reduce the handling risk since regular maintenance periods can be considerably extended, and the sealing of the cases excludes foreign particles.

Dustproof cases are for use in installations where dust can be "breathed" into a normal relay case owing to changes in ambient temperature. Completely sealed cases are essential under conditions of extreme heat, humidity and bacteria, or wherever a corrosive atmosphere exists,



and make it possible for these relays to be kept in service for up to approximately ten years without maintenance. Standard covers are still available for dust-free atmospheres.

For the dust-proof relay cases breathing is effected through a filter that prevents the entry of fine dust, but offers negligible resistance to air. The filter is

Above is the back of the dust-proof relay case showing the filter unit, while below is the earth fault relay in a completely sealed case

fitted to the back of the case and contains a replaceable unit of shredded nylon to stop dust particles. Iron particles are trapped by a magnetized grating in the cap of the filter. In atmospheres in which iron particles are prevalent, they can easily be removed from the grating without it being necessary to replace the shredded nylon unit.

The completely sealed cases are plastic covered for protection against corrosive atmospheres, and contain a silica gel indicator close to the glass to give visual warning of a leak. This indicator has sufficient capacity for absorbing moisture to deal with the ingress of damp air when the cover is removed for testing the relay. The relay operation indicator can be hand reset by a push-button on the relay case, the operating rod passing through the case being spring-loaded and sealed with a gasket.

These relays provide a high torque per VA, ensuring sufficient contact pressure to trip under the most adverse conditions.

PLATE FEEDER BELTS

The plate feeder belts manufactured by Plowright Bros., Ltd., are designed to receive and handle a sudden discharge of heavy bulk material from skips, tipplers, hoppers and bunkers and by control of depth of belt provide a smooth, even feed to screens, picking tables, or any conveying system. They are designed for handling large quantities of run-of-mine coal, iron ore, stone or dirt.

Length and width are determined by the requirements of the particular application. The present range of standard effective widths of belts is 3 ft. 6 in., 4 ft., 4 ft. 6 in., and 5 ft., but widths outside this range can be supplied. Speed can either be constant or variable.

Normal belting can be employed on feeders where they are horizontal or inclined up to 15 deg., but where the slope is required to be more than 15 deg. steel angles are fitted to the top side of the plates to retain the load.

Each standard unit has continuous 2-ft. high skirt plates, but where the depth of material is abnormal special skirt plates are designed. Each steel belt plate is attached to driving links through which a continuous spindle is placed which is supported by cast-iron rollers at each end. All working parts below the belt level are adequately protected by easily removable guards giving quick access for lubrication and maintenance.

JOY-STICK CONTROL ON CRAWLER

Two-lever joy-stick power controls are now available on the Lorain-26, a crawler-mounted machine with a heavy-duty ¾-yd. rating as a shovel and 17½ tons as a crane. This exclusive Lorain feature controls swing, travel, hoist, crowd and retract, or powering load-lowering and boom-derricking by hydraulic power. The conventional three or more levers are reduced to two and this fact, in addition to the power control itself, reduces operator fatigue, improves control, response and speed of operation. All series of Lorains can now be had with joy-stick power controls.

MINING MISCELLANY

The New South Wales Mines Department is examining allegations that U.S. companies are trying to drive new rutile producers out of business.

★

Several large Japanese consumers of ilmenite have negotiated contracts for all future supplies from Cable (1956), Ltd., at Bunbury, Western Australia. The ore is to be used for the production of pigments and titanium metal.

★

A search for radioactive minerals has been started by two officials of the U.K. Atomic Energy Authority in the interior of British Guiana.

★

Lately, American and Canadian investors put $500,000,000 into the mining development of Quebec's new mineral areas.

★

Four iron ore mines and a housing estate are being built at Leczyca, in the Lodz Voivodship, Poland.

★

The first copper concentrates from Mangula, Southern Rhodesia, should shortly be railed from Zawi. Production has been set at about 5,000 tons of copper a year.

★

No finds of importance have been reported following the small rush of prospectors which was started in Southern Rhodesia by the recent publication of aerial survey results giving indications of radium deposits. The main area concerned is north-west of Sinoia.

★

Mr. Ben Schoeman, the South African Minister of Transport, states that the export of anthracite, for which there is a good demand overseas, will be expedited when improvements to the Natal-Transvaal main line and Durban harbour have been completed. Meanwhile, temporary arrangements are being made for anthracite producers to keep up a limited volume of export business.

★

According to Professor G. J. Williams, Dean of the Otago School of Mines and Metallurgy, production of at least 750 tons a year should be envisaged when the Buller Gorge uranium deposits in New Zealand are exploited. This could be worth between £4,000,000 and £5,000,000 yearly.

★

The Zajaca mines in Yugoslavia are the largest antimony producers in Europe and among the largest in the world. Substantial investments were made during 1956 and 1957 in the expansion and modernization of the mines and improvement of the smelting process. These mines have an exportable surplus after satisfying all home requirements. In January-September this year, Zajaca Mines exported 720 tonnes of antimony compared with 1,662 tonnes in all 1956. It is not expected that this year's exports will exceed 1,400 tonnes.

★

Investigations by American interests are in progress into the extent and quality of the low-grade manganese deposits at Dixcove, near Takoradi, Ghana. These deposits, about which little information has so far been made available, have been worked on a small scale in the past, but operations came to an end in 1954.

★

Test runs in the crushing and grinding plant of the Stanleigh Uranium Mining Co., in Canada's Blind River field, are expected to begin this month and the mill will start operations at the end of the month.

★

The occurrence of chromium and platinum deposits in north-east Syria and of lead in the west has been confirmed by Soviet geologists, reports Comtel. The report adds that Syria will provide the manual labour and the Soviet Union the equipment and know-how for exploitation of the deposits.

★

The Aluminio Espanol and Earle companies are collaborating with various banks to set up a new 30,000,000 peso company called Aluminio Galicia at La Coruña, in Northern Spain. The plant would be designed to produce and work aluminium with a maximum annual output of 20,000 tonnes. It is understood that the new company would work with the French concerns of Péchiney and Ste. d'Exploitation d'Interets Chimiques (Seichime) and the Swiss firm S.A. pour l'Industrie de l'Aluminium.

★

The first consignment of mining installations for the Chinese People's Republic has left the Karol works, Walbrzych, Poland. The Karol works is to produce basic installations for two Chinese factories for the enriching and mechanical processing of some 3,000 tons of coal.

★

Ceylon's Ministry of Industries is to obtain assistance from the Soviet Union in the setting up of an iron and steel mill and for the exploitation of the country's peat deposits.

★

Shipments of coal from Norwegian mines on Spitzbergen will have reached some 320,000 tons when the last coal ship of the season leaves Longyearbyen on November 15. This output is approximately the same as last year.

★

The Compania Colombiana de Uranio (Coluranio) hopes to begin commercial production of uranium oxide in its mines at California, Santander, Colombia, before the middle of 1958.

★

Barclays Bank D.C.O., in its *Overseas Review*, states that by the end of 1956 more than a quarter of Southern Rhodesia had been geologically mapped in detail. Since 1947, £3,600,000 has been spent by mining companies investigating exclusive prospecting areas. The Bank also states that work is due to start on a further investigation into a lithium strike in the Ingiza District, near Bulawayo, and that more deposits of nickel have been discovered near Bindura. In the latter connection, there has been mention of a possible lode three miles long and varying in width between 150 and 650 ft.

★

The Société Métallurgique de Hoboken, of Antwerp, expects to begin production of nickel-cobalt matte in 1960, states the company's annual report, which refers to the completion of preliminary studies for the nickel-cobalt matte project. Another development reported by the company is the installation of equipment to treat copper-cobalt matte. The production capacity of cobalt salts has been expanded and the output of the germanium department is increasing considerably.

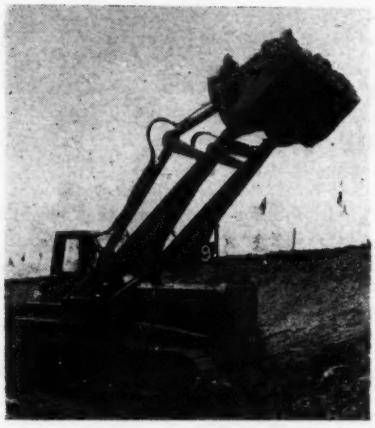
★

The French aluminium producer Péchiney has applied for 138 exploration permits for bauxite in the French Sudan. Péchiney recently sent a three-man team to the Sudan to outline its exploration projects to local authorities. During last February and March, company geologists surveyed the territory by helicopter with "encouraging results". A complete inventory of the mineral wealth of Bamako, Koulikora, and Kitahand Kinieba is now planned. The commercial value of possible bauxite deposits can only be assessed when this inventory is completed.

★

On October 29 Thomas Ward Ltd. held the first demonstration in the southern area of the Fowler Challenger range of British crawler tractors and shovels. The demonstration, which was repeated on the two following days, took place at Drinkwaters Pit, Hollybush Lane, Denham, Bucks. The machines exhibited included new types which had hitherto

The Challenger 3, Challenger 2 and Track-Marshall tractors at work



The Challenger loading shovel fitted with 1½ cu. yd. bucket

been designed exclusively in the United States. Of particular interest was a Challenger Shovel, which was making its first appearance at a public demonstration.

PERSONAL

Mr. Allen H. Engelhardt has been appointed by Cerro de Pasco Corp. to the new post of vice-president, which has been created on account of the corporation's growth and diversification, both in the U.S. and in South America.

★

Mr. Holman D. Pettibone, chairman of the board of the Chicago Title and Trust Co., has been appointed to head the U.S. Government's 12-man advisory committee to study America's huge stockpile of minerals, metals and materials.

★

Mr. W. G. Woods has been appointed technical representative of Siebe, Gorman and Co., Ltd., for the south-west of England and South Wales areas. His address is Shene House, Karen Drive, West Town, near Bristol (telephone number, Flax Bourton 486).

★

Mr. D. W. Stanley, who has been managing director of Metropolitan-Vickers South Africa (Pty.), Ltd., since 1948, is also chairman of that company, having succeeded Mr. A. L. Ohlson on his retirement from that office in June this year.

★

The 73rd annual dinner of the Royal School of Mines Association was held on Tuesday of this week at the Apothecaries' Hall, London, under the presidency of Mr. W. A. Gooday. Among the guests at this agreeable function were Dr. J. E. Holloway (High Commissioner for the Union of South Africa), who proposed the toast to the Association, Mr. G. Keith Allen (president, Institution of Mining and Metallurgy), Dr. R. P. Linstead (rector, Imperial College), J. E. Taylor (headmaster, Bedford Modern School), B. W. Kerrigan (secretary, Institution of Mining and Metallurgy), together with the president and honorary secretary of the R.C.S. Association, and the president, vice-president and honorary secretary of the R.S.M. Union.

COMMERCIAL EVENTS

Three industrial instruments which are new to Britain will be demonstrated on December 9-13 by Dr. H. Righi, of Beckman Instruments, at the works of Winston Electronics, Shepperton, Middlesex. They comprise an industrial gas chromatograph, electrolytic hygrometer, and leak detector. Arrangements to attend the demonstrations should be made by writing or telephoning Mr. Keith Lawrence (Walton-on-Thames 6321).

★

The Metallurgy Department of the Battersea College of Technology is holding a course of ten lectures on Applied Thermodynamics for metallurgists and chemists. The course will take place on Wednesday evenings, starting on January 8, 1958. The lecturer is Dr. O. Kubaschewski, senior principal scientific officer at the National Physical Laboratory. The fee is £1.

★

The first industrial exhibit to reach the site of the Universal and International Exhibition arrived recently in Brussels. It belongs to British Timken, Ltd., of Duston, Northampton, whose display consists of a wide range of products from a four-row rolling mill tapered roller bearing weighing 3½ tons down to miniature bearings.

★

A huge programme of research and development involving expenditure of £45,000,000 over the next five years was announced by Mr. H. E. Humphreys, Junr., president of the United States Rubber Co., at the opening of the company's new research centre at Wayne, New Jersey. This expenditure is part of a five years' programme of expanded effort. One of the main objectives is to bridge the gap between rubber and metals. The company is working on new rubber types and new plastics, as well as blends of the two. Another objective is the application of radiation to the production of new materials and to develop special types of rubber which will stand up under atomic rays at atomic energy plants. Through its association with the United States Rubber Co., the North British Rubber Co. enjoys the full technical and development facilities of the American company. It is evident that many of the new products foreshadowed at the opening of the new research centre in America will be manufactured in due course at the Edinburgh and Dumfries plants of the North British Rubber Co.

★

The boards of the Yorkshire Copper Works, Ltd., and Imperial Chemical Industries, Ltd., are exploring methods of combining their activities in the copper and copper alloy tube and plate industry in a joint enterprise on the basis of equal participation.

★

The Magnetic Equipment Co., Ltd., Lake Works, Portchester, Hants, announce that they have appointed La Thermo-Technique S.P.R.L., of 52 Avenue de l'Hippodrome, Brussels, as their sole representatives for Belgium, their association with their former representatives, Europe Technic S.P.R.L., of Charleroi, having ceased on October 1.

★

Mineral Exploration Syndicate (Tanganyika) has been formed as a private company by the Hunting Group with a capital of £100 in £1 shares. Its objects are to enter into an agreement with Hunting Technical Services for the coordination of activities in geological surveying and in developing mining concessions in Africa. The registered offices of the new company is Norwich House, Dunraven Street, London, W.1.

★

On Tuesday, October 29, the most recent stage in a steady programme of development of the Sheffield depot of George Cohen, Sons and Co., Ltd., was officially declared complete when Mr. Felix L. Levy opened the depot's replanned and enlarged offices. Mr. Levy, besides being a director of the George Cohen 600 Group, Ltd., and a managing director of George Cohen, Sons and Co., Ltd., is this year's president of the National Federation of Scrap Iron, Steel and Metal Merchants.

★

On Monday, October 21, the laboratory of the development and research department of the Mond Nickel Co., Ltd., celebrated its 21st anniversary. This establishment, which is situated in Birmingham, was opened in 1936 by Lord Weir with a staff of 16, under the direction of Dr. L. B. Pfeil, who is now a director of the company. Today, it has a staff of over 180. In the past 21 years the laboratory, which is devoted to the study of nickel and its alloys, has been responsible for the development of many new and valuable alloys, particularly the Nimonic series of high-temperature materials. Its members have also played an important part in the development of spheroidal graphite cast iron.

★

Coal magazine has changed its address to Chancery House, Chancery Lane, London, W.C.2. Telephone Holborn 5018.

CONTRACTS AND TENDERS

TEN/27977A, summarized in our issue of 20/9/57, page 340, gave information regarding opencast mining and mining electrical equipment for the Neyveli Lignite Corporation (Private), Ltd., India (Schedule Z). The closing date for the receipt of bids has been postponed to 2/12/1957.

★

Head Wrightson and Co., S.A. (Pty.), Ltd., of Johannesburg, have been awarded a contract for the supply of a 16 ft. dia. blast furnace, which is part of the expansion programme launched by the Rhodesian Iron and Steel Co. (Pvt.), Ltd., for its works near Que Que, Southern Rhodesia. In addition, the same company has secured the order for a 3,000,000 cu. ft. per hr. gas cleaning plant required to clean the gas produced by the new furnace and two smaller existing furnaces. The plant will be to the general design of Head Wrightson Iron and Steel Works Engineering, Ltd., a subsidiary of Head Wrightson and Co., Ltd., England, in collaboration with RISCOM's consulting engineers, John Miles and Partners, of Bulawayo. The charge will consist of a blend of primary ore and sinter and the coke will be produced on the works site from Wankie coal. With the exception primarily of instrumentation and electrical equipment not yet available from local sources, the bulk of the plant will be manufactured in the Union and Southern Rhodesia.

★

A contract for the sale of about $5,000,000 worth of British Columbia copper concentrates in the next two years has been negotiated between Cowichan Copper Co., Ltd., and Japanese interests. It will involve the entire output of the company's Vancouver Island mine.

Metals and Minerals

Metals at the Atomic Fair

The significance of the nuclear industries as a market for mineral and metal producers was underlined by the wide variety of materials displayed at the Atomic Fair held in the Coliseum, New York, on October 28 to 31. The exhibits were by no means confined to those newer metals which have been developed primarily for atomic work, for many traditional materials are also finding expanding outlets in the nuclear field.

An exhibitor from Britain was the Metals Division of Imperial Chemical Industries which, of course, has long been associated with the development of nuclear energy. Included in this company's display were extended surface tubing in aluminium and magnesium for fuel cans and semi-finished forms of titanium and zirconium. I.C.I. also showed samples of other new metals, such as niobium and beryllium, on which active research and development is being conducted, as well as other wrought nonferrous metals for which the company has a world-wide reputation.

According to an I.C.I. spokesman, the three most important nuclear metals at the present time appear to be zirconium, beryllium and columbium. Their full commercial prospects are still uncertain, however, for demand will depend to a considerable extent on the type of reactor which will be preferred. It seems unlikely that any one single reactor type will be ubiquitous; consequently each of these metals will probably find applications.

Exhibits showing the functions of both zirconium and hafnium in the atomic energy field were shown by the U.S. I. Mallory-Sharon Metals Corp. Samples of zirconium mill products, as well as a few fabricated items, were also on display. According to a representative of this company, the end of 1957 will see a production of these metals ten times greater than at the beginning of the year.

A wide variety of beryllium and beryllium oxide products was shown by the Beryllium Corp., of Reading, Pa. Considerable interest has recently been created by the availability of hot-pressed beryllium oxide shapes for possible reactor use. The Beryllium Corp. is now producing, on a limited basis, hot-pressed and machined beryllium oxide shapes of high density. Next year, it was stated, both beryllium metal and beryllium oxide machined shapes will be available on a commercial basis. As these materials become obtainable in large quantities, and engineers learn that they can be handled safely by industry at both research and production levels, the interest in beryllium for nuclear, aircraft, and other uses is expected to increase very rapidly.

Lead in various forms such as brick, pipe and sheet for shielding purposes was displayed by the National Lead Co., as well as lead compounds incorporated in organic materials to serve dual functions for special purposes. National Lead is also a supplier of barytes and magnetite for densification of concrete used as a biological shield in reactor construction.

Another possibility indicated at the Atomic Fair is that stainless steel may find increasing application for cladding fuel elements and in other fields of nuclear work, because it is relatively cheap and has high corrosion resistance. However, there are still some scattered problems to work out. Stainless steel clad fuel elements are used in the Army Package Reactor, which was built by Alco Products. Inc.

One of the problems associated with the use of stainless steel in pressurized water reactors concerns the build-up of by-product cobalt 60.

Prominent among the products shown by Superior Steel Co., of Carnegie, Pa., was boron stainless steel for shielding and control applications.

THE WOLFRAM MARKET

The outlook for wolfram was commented upon by the chairman, Mr. F. Gates, at the annual meeting of Beralt Tin and Wolfram Ltd. Mr. Gates said that the fall in the wolfram price had continued to a point at which it would be difficult to sell a large parcel of wolfram concentrates at over 100s. per unit. He believed that concentrates of fair quality from the Far East had been sold at less than 90s. per unit. On the other hand, there were only a few producers, on this side of the Iron Curtain at least, that could continue to buy wolfram at the current price. Provided that the market was not adversely affected by unwise policies as regards disposal of governmental stockpiles, the lack of offerings and the desire to replenish stocks might be expected in due course to lead to some recovery in the price. He did not, however, look for any return in the near future to the high prices of previous years. Wolfram is at present quoted at 106s. - 111s. per l.ton unit.

U.S. URANIUM SUPPLIES

Speaking at a meeting of the Atomic Industrial Forum, Mr. Jesse C. Johnson, Director of Raw Materials for the U.S. Atomic Energy Commission, said that the U.S. now had uranium ore reserves of about 70,000,000 tons, averaging 5 lb. of oxide per ton, which represents approximately a ten-year supply.

United States domestic production of uranium concentrates is running at an annual rate of 10,000 s.tons. On the basis of current contracts, Mr. Johnson estimated that it should rise to 15,000 tons a year by early 1959. Canadian production at that time is expected to be 15,000 tons, with South Africa producing about 6,000 tons. Total Free World production is expected to be 40,000 tons or more by the end of 1959.

In the U.S. the average cost of processing ore has been halved since 1953. The average cost estimate for concentrate output is now about $960. This will probably be reduced in future years. Mining and milling costs range from around $7 to $15 per ton.

Mr. Johnson emphasized that uranium producers could not be expected to finance the development of ore reserves without an existing market and confidence in the future. Stating that it would be undesirable to expand uranium production and then be faced with a major curtailment later on, he expressed the view that the industry should be kept going on a conservative basis.

★

A development that may have far-reaching effects on the production of atomic energy has occurred at Sasol, South Africa's oil-from-coal plant. It has been found that, in the course of producing oil from coal, an enrichment of heavy hydrogen takes place which facilitates the production of heavy water. Heavy water, in turn, enables atomic energy to be developed from uranium oxide, but in the past it was so expensive that it proved more economical to convert uranium oxide to pure uranium. The availability of cheap heavy water would eliminate the necessity for this costly conversion. The discovery is believed to open up big possibilities for South Africa, bringing atomic power within reach of the nation.

S.A. CHROME ORE

The South African Minister of Transport, Mr. Ben Schoeman, has stated that the Union's chrome ore railings for 1957-58 will probably remain between 500,000 and 600,000 tons, with an improvement during 1958-59 and a sharp rise during 1959-60, this being dependent on the handling capacity of Lourenco Marques harbour. Towards the end of last year the Mozambique railways requested that steps be taken to ensure that chrome ore railings did not exceed 2,500 tons a day. These tonnages are likely to remain the daily limit until the reclamation scheme for Lourenco Marques harbour has been completed.

LOWER ANTIMONY PRICES

With effect from November 1, the price of English 99.6 per cent grade antimony metal has been reduced by £25 to £197 10s. per ton and of English 99 per cent by £20 to £190. Crude 70 per cent is £10 cheaper at £190.

These reductions in the U.K. domestic antimony prices are the first price changes since November, 1953, and are considered in some quarters to have been long overdue. The main reason for them is, of course, the fact that antimony ore is today much cheaper than it was a few months ago, but the availability of metal of European and Far Eastern origin at considerably cheaper prices than English metal—even after taking into account the 10 per cent import duty—has unquestionably been a further factor. Russian and Chinese antimony of around 99.6 per cent grade, for instance, is mentioned at not more than £180 per ton delivered U.K., import duty included. The lower prices for domestic antimony have placed U.K. manufacturers in a more favourable position to compete.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

The week has seen a further strengthening in the undertone of the copper market, but a weaker sentiment has developed in respect of the other three metals, and it is evident from the variety of opinion expressed that dealers have many different opinions on the possible course of markets between now and the end of the year.

COPPER'S FURTHER RISE

Over the week-end the copper market fell away from the high point reached last Thursday afternoon, but on Tuesday and Wednesday of this week the sentiment was better. It was aided by a considerable amount of bear covering and there seemed a slight increase in consumer demand on the Continent. At the present levels it is no longer profitable to ship copper to New York as had been the case on various occasions during the past few weeks, the results of which are apparent in the reduction of the copper stocks in official warehouses by 759 tons giving a total of 17,904 tons on Monday morning.

The Belgian price was raised at the end of last week to the equivalent of 23.80 c. per lb. delivered New York and so still remains the cheapest metal available. In the States, customs smelters have been able to make satisfactory sales, but as the demand has shown no signs of increasing the talk of a possible increase in their price of 25½ c. per lb. soon died away; and consequently the smelters' action on Wednesday in raising their price to 26 c. was all the more surprising. Some people in London believe that this action was necessitated by the smelters' need to raise their intake price for copper scrap rather than to any hardening of the primary metal price. Producers' views differ, as on one hand it is said that offtake is sufficient to enable the price of 27 c. to be maintained, whilst on the other hand at least one producer is admitting that the price is under pressure.

It is extremely difficult to obtain any clear picture of what is happening in the United States, but the majority opinion leans towards the theory that consumers' stocks are now almost down to minimum and that at any sign of trouble in producing areas a large tonnage of metal would have to be found to satisfy their demands; talk about purchase of stocks for end-of-year stock-taking is hardly heard this year.

A representative of the Chilean Government's Copper Department, Senor Lagarrille is at present in this country for informal discussions with copper consumers. It is understood that he will subsequently be visiting the Continent and the United States. In view of the recent breakdown of negotiations between U.K. consumers and Rhodesian producers, it is a little difficult to see what these talks are likely to achieve. If the Chilean Government is concerned about the present price of copper, an improvement would seem likely to be achieved more promptly by cut-backs in Chilean production paralleling those in the United States and elsewhere.

TIN SITUATION UNCHANGED

The tin situation remains unchanged from last week, namely, that the buffer-pool manager is suporting the market for cash metal at £730 per ton, whilst the prices for forward metal in London and shipment metal from Singapore continue to decline and the L.M.E. backwardation is now as much as £15 per ton. The tonnages having to be bought to support the cash price appear to be increasing and some quarters have voiced the opinion that further calls on producing countries are likely to be made earlier than was originally envisaged.

Stocks of tin in official warehouses showed a decrease of 170 tons to 3,640 tons, and it is rumoured that some of the metal in the hands of the buffer-stock manager is no longer on warrant. On Thursday, the Eastern price was £718 per ton c.i.f. Europe.

LEAD AND ZINC FEATURELESS

The main event in the lead and zinc markets has been the announcement by the British Government that they will be offering for sale 9,000 tons of zinc for delivery during the months December, January and February, and of this tonnage 3,200 tons will be sold by open tender and only a very small part of this tonnage is refined metal.

Demand for both metals continues of a routine nature although, as reported last week, the motor-car industry is now taking larger tonnages of high-grade zinc for diecasting purposes. On the London market a small backwardation has appeared in the lead price, and it may be that some metal is being diverted to the United States in order that it should arrive there before any possible duty increases come into force.

Closing prices are as follows:

	Oct. 31		Nov. 7	
	Buyers	*Sellers*	*Buyers*	*Sellers*
COPPER				
Cash	£190½	£190¾	£194	£194½
Three months	£194	£194½	£197	£198
Settlement	£190¾		£194½	
Week's turnover	8,675 tons		7,250 tons	
LEAD				
Current ½ month	£86	£86½	£87½	£87¾
Three months	£86½	£86¾	£87	£87¼
Week's turnover	3,225 tons		3,525 tons	
TIN				
Cash	£730	£730½	£730	£730½
Three months	£722½	£723½	£715½	£716
Settlement	£730½		£730½	
Week's turnover	1,560 tons		1,725 tons	
ZINC				
Current ½ month	£70½	£70½	£69	£69½
Three months	£70	£70½	£68½	£68¾
Week's turnover	3,650 tons		4,300 tons	

LONDON METAL AND ORE PRICES, NOV. 7, 1957

METAL PRICES

Aluminium, 99.5%, £197 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) basis 20s. 0d./21s. 0d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 11s. 3d. lb.
Cerium (99% nett), £13 18s. lb. delivered U.K.
Chromium, Cr. 99% 7s. 2d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 3s. 4d. per gram
Gold, 249s. 9½d.
Iridium, £27/29 oz. nom.
Lanthanum (98/99%) 15s. per gram
Manganese Metal (96%-98%) £310
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £20/22 oz. nom.
Osmiridium, nom.
Palladium, £7 10s./£8 0s. oz.
Platinum U.K. and Empire Refined £31/£34 oz.
Imported £28 5s./£28 15s. nom.
Quicksilver, £72 10s. ex-warehouse
Rhodium, £42 oz.
Ruthenium, £15/£17 oz. nom.
Selenium, 75s. nom. per lb.
Silver, 78¼d. f. oz. spot and 78¼d. f'd.
Tellurium, 15s. 16s. lb.

ORES AND OXIDES

Bismuth	30% 5s. 0d. lb. c.i.f. 20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48%	£19 5s. 0d. per ton c.i.f.
" Hard Lumpy 45%	£19 5s. 0d. per ton c.i.f.
" Refractory 40%	£13 0s. 0d. per ton c.i.f.
" Smalls 44%	£18 0s. 0d. per ton c.i.f.
Baluchistan 48%	£12 0s. 0d. per ton f.o.b.
Columbite, 65% combined oxides, high grade	nom.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£26 5s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£22 0s. d/d
Manganese Ore Indian	
Europe (46%-48%) basis 95s. freight	125d./127d. per unit c.i.f. nom.
Manganese Ore (43%-45%)	98d./100d. per unit c.i.f. nom.
Manganese Ore (38%-40%)	92d./94d. per unit nom. (including duty)
Molybdenite (85% basis)	8s. 5d. nom. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£45/£47, per ton c.i.f. Aust'n
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	106s. 0d./111s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 90-95% V_2O_5	£10 per unit c.i.f.
Zircon Sand (Australian) (65-66% ZrO_2)	£17 per ton c.i.f.

Mining Finance

Mount Isa's Good Results

In spite of the persistent downward trend in the prices of copper, lead and zinc over the past year or so, the preliminary results relating to operations at Mount Isa for year ended June 30, 1957, are not as discouraging as one might have thought. Gross working profits for the year amount to £A6,248,740 compared with £A6,695,515, and when all expenses, including taxation, have been taken into account, the net profit figure is £A3,140,823 against £A4,301,931.

The relatively high earnings represented by these figures is undoubtedly due, in part at any rate, to an all-round increase in the production of these three metals and, incidentally, to the company's output of silver, the price of which has remained remarkably stable, and to the fact that Australian copper has been held at the producers' figure which is higher than the world market price.

What shock-absorbing quality is provided by the lead bonus is not revealed in the preliminary profit statement but it may be noted that the lead bonus in the preceding year cost the company as much as £A1,941,000, and there thus appears to be ample scope for this figure to have taken some of the brunt resulting from the fall in the lead price during the year.

The company is recommending a final dividend of 3d. and a distribution of 6d. per 5s. stock unit to be satisfied by way of a one-for-ten scrip issue, making for the year a payment of 9d. against 1s. 3d. previously on the £A5,757,312 one-class issued capital.

MESSINA'S LOWER PROFITS

Messina (Transvaal) Development Co. experienced a drop of some £800,000 on its earnings during the year ended September 30, 1957, compared with the previous year. Gross working profits totalled £1,733,000 against £2,533,000 and after providing for all expenses, including taxation, the net profit figure was £760,000 against £1,368,000. The persistently lower prices obtainable for copper during the company's financial year is, of course, responsible for the latest earnings drop and this could be more strongly emphasized by referring to the fact that stocks of refined copper at cost of production slumped to £52,440 against £129,583.

The company has declared a dividend of 90 per cent, equal to 4s. 6d. per 5s. stock unit, payable to members registered by November 22 next.

NEW CENTRAL WITS PORTFOLIO

New Central Witwatersrand area, incorporated in South Africa in 1933, is a small but interesting mining finance company.

The results for the year ended June 30, 1957, have just been published, wherein the chairman, Mr. M. W. Rush, sets out the company's portfolio. This is made up wholly of mining companies, as follows:

Shareholdings (000)		*Price* (4/11/57)	*Value* (£000)
22.0	Buffelsfontein ...	36/-	39.6
3.4	E.R.P.M.	38/7½	6.6
9.6	Ofsits 5% notes	(*par*)	9.6
38.5	Ofsits	52/6	101.1
7.5	Randfontein ...	25/7½	9.6
10.0	St. Helena	30/6	15.2
29.0	Vaal Reefs	35/9	51.8
100.0	Writs	37/6	187.5
1.5	W. Wits	35/-	2.5
10.0	Rand Selection...	33/1½	16.6

Thus on November 4, the market value of the company's investments totalled £440,100 which goes against a book value of £479,320. Current liabilities amount to £5,500 and taking this into account the total market value of the portfolio is equivalent to approximately 4s. 11d. per 5s. share on the £441,599 issued capital.

The portfolio although small is well balanced and investment income should continue to rise. Last year, income from investments totalled £21,539 compared with £12,780 in the preceding year and with the company enjoying a regular and increasing revenue, Mr. Rush states "that the board can reasonably give consideration next year for the payment of a dividend".

RAND AND O.F.S. RETURNS FOR OCTOBER

A drop in the gold price by 1s. 2d. per oz. to 249s. 3d. per oz. left its mark on working profits of the Rand and O.F.S. Gold Mines during the month of October. Even West Driefontein and Hartebeestfontein — the two big money-earners—experienced small declines in their working profits.

In general, the October returns provide little cheer to shareholders, although there are a few interesting features. St. Helena, on a mill throughput of 120,000 tons, lowered its working costs to 40s. 6d. per ton. President Brand reported a record monthly crushing of 71,000 tons and peak profits of £430,000. Free State Geduld also announced a record profit of £310,136, but this was topped by Buffelsfontein returning record earnings of £310,416. Blyvoor announced a working profit from gold of £451,871 and Stilfontein returned £453,785 from gold and uranium. On the other hand, losses announced by both Freddies and Loraine were more than in September. Other points of interest were provided by Welkom raising its earnings to peak level of £64,027 and by East Rand Proprietary putting through a record tonnage of 224,000 tons.

THE POSITION AT KANSANSHI

The news last week-end that the Kansanshi copper mine in Northern Rhodesia has become partially flooded underground has been confirmed by a statement from Anglo American Corporation which has been issued as an amplification

LONDON MARKET HIGHLIGHTS

Cutting of professional commitments in front of the week-end was held largely to blame for the downturn in prices and business this week. There was no real selling activity, but with a paucity of buying, interest share prices mostly softened.

The monthly returns, based on a lower gold price last month of 249s. 3d., produced little in the way of outstanding profit increases but were fully satisfactory and were accepted by the market as such. Broadly speaking, the market can be described as fully firm underneath and even if the previous week's boomlet failed to develop the chances are that others will occur and may well meet with more success. Diamonds were a steadier market after their recent setback on the man-made diamond worries, while Platinums showed little of interest.

Coppers soon receded in sympathy with the metal price after their earlier revival which had stemmed from optimistic U.S. views about the future of the metal. A weak feature was Rhodesia-Katanga which at one time dropped 5s. to 15s. on the news of flooding at the Kansanshi mine. "Rho-Kats" subsequently rallied with the rest of the market to 17s. 6d. Messina issues also recovered, the shares rising to 98s. 9d. and the options to 47s., despite the lower final dividend.

Tin shares were a dull spot. The disappointing behaviour of the forward tin price (this has not yet been supported by the Buffer Stock manager who is presently buying cash metal only) caused concern. Ampat Tin had, additionally, to stomach a cut in dividend and profits with the result that the shares dropped 2s. 3d. to 7s. 3d., their lowest this year. Disappointment was also felt over the dividend reduction by Siamese Tin which fell 1s. 3d. to 10s. 6d. Many other lesser price falls were recorded in the section.

Also unhappy for most of the week were lead-zinc shares. Consolidated Zinc, in particular, dropped 3s. 9d. to 53s. before later rallying well to 55s. 3d. Mount Isa (25s. 3d.), which had also lost ground, curiously made little response to the dividend reduction which was generally considered to be more severe than might have been expected. The news was tempered to some extent by the accompanying 1-for-10 scrip issue.

Elsewhere, Consolidated Murchison dropped to their lowest price since 1954 of 35s. following the cut in the U.K. antimony price. Also depressed were Central Provinces Manganese at 20s. 3d. before recovering to 21s. 3d.

of previous Press reports, and is reprinted below.

"At 8 p.m. on October 31, as the cleaning shift were coming on duty a rush of water occurred at a point some 16 feet back from the face of the 15 vein Drive North on the 500 ft. level, which rapidly flooded all the workings on that level. All personnel withdrew safely from the mine.

"The pumping installations underground were unable to handle the inflow of water and were flooded; the water level now stands at a point some 250 feet below the collar of the main shaft, and production of ore and all other operations have been brought to a stop.

"The cause of this disaster is believed to have been the failure of a weak bed which was acting as a dam to a large body of water not disclosed by pilot drilling, but it is too early to say whether this water was an isolated body or whether it is connected to the main underground water system.

"It is intended to install pumps in the main South Shaft and the response of the water level in the various shafts to this pumping will give an indication of the rate of inflow and the degree of free circulation through the strata.

"Until this information is obtained it will not be possible to estimate the magnitude of the dewatering operation nor how long it is likely to take."

The mine was closed down on Wednesday and the miners and surface workers laid off.

S.A. COAL ESTATES' TRANSPORT DIFFICULTIES

Mr. T. Coulter, chairman of South African Coal Estates (Witbank), whose statement is given in full on p. 560, makes the point that the company's operations for the year ended June 30, 1957, were affected both with regard to production and profits by the serious deterioration in the railway truck position towards the end of the company's financial year. In fact, he states that in order to meet the inadequate railway transportation, the industry resorted to increased road haulage which at one stage was moving coal at the alarming rate of about 3,000,000 tons per annum.

Mr. Coulter also points out that the company's No. 3 pit at the Navigation mine will be able to provide sufficient tonnages to meet probable commitments until the middle of 1960 so that the opening up of No. 4 pit has been delayed for a year.

HARTIES' SHAFT-SINKING PROPOSAL

Mr. Bernstein, in his statement accompanying the annual report of Hartebeestfontein Gold Mining for the year ended June 30, 1957, states that extensions to the reduction plant to bring the capacity of the crushing and milling sections to 90,000 tons a month, and that of the cyanide and recovery sections to 100,000 tons a month, were completed during the year. It is now expected that milling and treatment for gold and uranium will continue at the present rates until ore from the deep level area of the mine becomes available. This should materialize sometime next year as the company's shaft-sinking programme will be completed before June 30, 1958. Mr. Bernstein's statement appears on page 558.

EASTERN TRANSVAAL CONSOLIDATED MINES, LIMITED

(Incorporated in the Union of South Africa)

HIGHER TOTAL EARNINGS

MR. L. P. KENT'S REVIEW OF OPERATIONS

The 32nd annual general meeting of Eastern Transvaal Consolidated Mines, Limited, will be held on November 28 in Johannesburg.

The following is the circulated review of the chairman, **Mr. L. P. Kent:**

The total profit earned by all branches of your company during the year under review amounted to £193,553 as compared with £180,338 for the previous year. A dividend of 7½ per cent (4½d. per share) was maintained for the year ended June 30, 1957, notwithstanding the considerable capital expenditure during the year amounting to £126,202.

The largest single amount of capital expenditure (£69,688) is in respect of the Noordkaap power station, situated close to the New Consort Mine, to which reference was made in my review last year. Extensions to the power station are now nearing completion.

Mining Operations

At the Sheba Mine very high development values continue to be exposed in a small zone in the Zwartkopje section. The tonnage available for mining from this area, although limited, has a beneficial effect on the grade. Development is in progress to ascertain whether these values persist in depth.

At the Agnes Mine the sinking of the Cesca sub-vertical shaft from the 17th level, the elevation of the Ben Lomond Tunnel, was continued to 500 ft. below the collar of the shaft. Sinking was temporarily suspended while the 21st level station and a temporary sump were excavated.

At the Mamre Mine the scale of operations has been considerably reduced since October, 1956. By confining mining activities to sweeping, the tonnage treated decreased to approximately 250 tons per month and resulted in the elimination of the loss previously incurred from mining operations. Prospecting carried out on extensions of the outcrop on neighbouring farms has not disclosed any deposits of economic importance.

A programme of prospecting and resampling of the dormant mines on your company's property in the Barberton area has been initiated.

Welfare of Native Labour

The whole of the retrospective liability to which your Company was committed by the Pneumoconiosis Act has been discharged. Ways and means to determine the most efficient way of implementing the requirements of the Act in respect of periodical radiographical examinations of all Natives employed are being studied.

To comply with the Native Labour Regulation Act, 1911, and the Native Administration Act, 1927, steps are being taken to provide additional accommodation for single Native workers. Members will recall that in my review last year I intimated that these regulations have the effect, *inter alia*, of limiting the number of married Natives that can be accommodated on mines.

Coal supplies, generally, have been adequate for the requirements of the power station and the mines, and there was no curtailment of operations due to coal shortages.

Subsidiary Activities

Plantation and sawmilling profits from your company's forestry undertaking amounted to £958 as compared with a loss of £7,837 in the previous year. During the year a contract was concluded with the Barberton Municipality whereby your company will be able to supplement the timber available for processing by drawing from the Municipality's plantations. The period of the contract is five years with an option of renewal beyond that date. In anticipation of increased yields from the plantations, planning is well advanced for an aerial cableway to feed a central sawmill and re-manufacturing plant. These plants will replace the two small breakdown mills in the mountains.

Your company's subsidiary, Frantzina's Rust Timber Plantations, Limited, made a profit of £7,533 during the year as compared with £7,556 in the previous year; in addition, a surplus of £3,170 was realized on the sale of plant and vehicles compared with £99 in the previous year. A quantity of sawn gum timber was affected by heart rot and cell collapse. This condition, which was not evident before the trees were felled, was aggravated during the drying process. Towards the end of the year your subsidiary company successfully tendered for the purchase of timber from the Government plantations in Nelshoogte. In terms of the tender the basic prices for logs were fixed and in addition tenderers had to offer a premium to obtain the contract. From the consolidated balance sheet you will notice that the balance of the premium still outstanding at June 30, 1957, was £19,200, which sum will be paid off in four equal annual instalments. This timber will be processed at the Frantzina's Rust sawmill which is being modified to cope with the additional intake.

The demand for the products from both your company's and the Frantzina's Rust sawmills continued at a satisfactory level, but during the year a shortage of railway trucks was experienced. In anticipation of the increased output from the various sawmills, railway siding facilities are being augmented.

The profit from farming activities amounted to £1,136. Adverse weather conditions, including a particularly damaging hailstorm, affected production. The export of citrus was maintained.

I take this opportunity of placing on record your Board's appreciation of the services rendered by our general manager Mr. C. B. Genis, and by the managers, staffs and employees of our various mines and branches.

HARTEBEESTFONTEIN

(Incorporated in
the Union of South Africa)

URANIUM — SUBSTANTIAL CONTRIBUTION TO PROFITS

PROGRESS OF DEVELOPMENT PROGRAMME

The eighth annual general meeting of Hartebeestfontein Gold Mining Company Limited will be held on November 28 in Johannesburg.

The following is the circulated review of the chairman, **Mr. B. L. Bernstein :—**

In November, 1956, the production of uranium commenced at the mine when 88,000 tons of pulp were treated. The plant operated to its full capacity of 100,000 tons per month during December, 1956, and this rate was maintained throughout the remainder of the year. Uranium profits for the first eight months of operation amounting to £1,590,546 represented almost 35 per cent of the total working profit for the year.

Research work undertaken at the Anglo-Transvaal research laboratory indicated that improved gold recovery would result if the uranium was extracted before the gold. Modifications to the metallurgical plant were put in hand and the "reverse leach" process was instituted in April, 1957. Pulp from the gold plant thickeners is now first passed to the uranium plant for the extraction of uranium, before being returned to the cyanide recovery section of the gold plant for the extraction of gold. It is significant that this modification has resulted in the mine recovering between .2 and .25 dwt. of additional gold per ton of ore treated. Some gold is also being recovered from the re-treatment of accumulated slimes.

The final cost of the uranium plant will exceed the loan facilities available for this purpose by approximately £300,000. Application has been made through the Atomic Energy Board for additional loan facilities to finance this increased expenditure.

Considerable success has been achieved at your mine in the practice of sorting. Sorting starts underground in the stopes when waste rock is packed into permanent waste walls in the stopes to provide support for the hanging-wall and to reduce as much as possible the unprofitable handling of barren rock. All ore hoisted to the surface is screened mechanically. Material which passes through a 2½-in. mesh screen goes straight into the crushing circuit. The larger material, which has been found to contain a smaller proportion of gold and uranium, is then run over the sorting belts and the reef is separated from the waste by hand.

In July, 1956, 24.26 per cent of the ore brought to the sorting station on surface was discarded as waste. In July, 1957, this percentage had increased to 29.95 per cent with an overall average for the year of 26.84 per cent.

Satisfactory Gold Production

The production of gold during the year continued to be satisfactory. The milling rate and recovery grade increased steadily from 66,000 tons at 9.65 dwt. per ton in July, 1956, to 85,000 tons at 10.90 dwt. per ton in June, 1957. The total tonnage milled was 920,000 tons and the average recovery grade 10.291 dwt. per ton. Working costs fluctuated between 65s. and 66s. 6d. per ton milled, but the cost per oz. fine recovered was reduced from 136s. 9d. in July, 1956, to 120s. 2d. in June, 1957, and the working profit per ton from gold production rose to 64s. 10d., an increase of 17s. 11d. as compared with the previous year.

The surplus for the year was £4,423,470 which, when added to the undistributed balance of £359,369 brought forward from the previous year, made £4,782839 available for appropriations. £2,744,051 was appropriated for capital expenditure and repayment of loans, £1,800,000 was distributed to shareholders in dividends, which aggregated 4s. per share for the year, and the balance of £238,788 was carried forward to the current financial year.

Extensions to the reduction plant to bring the capacity of the crushing and milling sections to 90,000 tons per month and that of the cyanide and recovery sections to 100,000 tons per month were completed during the year. It is anticipated that milling and treatment for gold and uranium will continue at the present rates until ore from the deep level area of the mine becomes available.

Shaft Sinking Programme

Delays in the delivery of permanent winders and stage hoists caused a late start in the shaft sinking programme, to which I referred in my review last year. Full scale sinking operations commenced in No. 2a subvertical shaft in September, 1957, and at No. 3 vertical shaft in October, 1957. Despite the delay it is anticipated that the sinking of these shafts will be completed by the end of the present financial year.

During the year under review it was decided to sink an additional shaft to improve the ventilation of the mine. Sinking of this 14 ft. diameter unlined ventilation shaft commenced during April, 1957, and by the end of August had been holed to a raise from the second level. An exhaust fan has now been installed and the shaft is operating successfully as an upcast airway. Air is now downcast at No. 1 shaft thus improving ventilation in the eastern portion of the mine.

Development footage increased by 792 ft. as compared with the previous year and totalled 74,397 ft., but the footage on reef decreased with a corresponding decrease in the footage sampled from 27,840 to 23,700. This decrease is largely due to the practice of resue raising to which reference was made in my review last year. Percentage payability decreased from 95 per cent to 93.4 per cent, but the average values of gold and uranium oxide increased from 442 in. dwt. to 465 in. dwt. and 32.35 in. lb. to 36.92 in. lb. respectively.

Ore Reserves

The total ore reserve fully developed as at June 30, 1957, was estimated at 2,101,000 tons, having a gold value of 9.84 dwt. per ton and an uranium oxide content of 0.785 lb. per ton over an estimated stoping width of 40 in. Compared with the ore reserve as at June 30, 1956, there is an increase of 419,000 tons and the gold and uranium values have increased by 0.27 dwt. per ton and 0.041 lb. per ton respectively. The accumulated slime available for treatment for the extraction of uranium oxide as at June 30, 1957, was computed to be 632,700 tons having an average uranium oxide content of 0.778 lb. per ton and a gold content of 0.43 dwt. per ton.

Work is proceeding on a programme to increase the underground pumping capacity to over 10,000,000 gallons per day and to increase the underground water storage capacity.

The building of housing for European and native employees continued throughout the year to keep pace with the increasing labour force. The Duff Scott Memorial Native Hospital, which provides hospital facilities for the native employees of the Hartebeestfontein, Stilfontein and Buffelsfontein mines was completed during the year. An extension is at present being built.

Since the close of the financial year under review, in anticipation of the proclamation of Stilfontein Township Extension No. 2, which is owned by your Company, negotiations have commenced with regard to the handing over of the township services to the local authority.

The Pneumoconiosis Act

The Pneumoconiosis Act which came into force last year, was introduced for the purpose of consolidating and amending the law relating to the payment of silicosis compensation and covers the group of diseases now falling under the heading of "pneumoconiosis". The benefits payable have been increased in respect of future cases and also retrospectively to all existing cases. The State has accepted responsibility for the latter, but benefits in respect of future cases will have to be provided by the mines through increased annual levies.

At March 31, 1956, the Company's share of the outstanding liabilities under the Silicosis Act, 1946, was assessed at £3,861. Full provision has now been made for the outstanding liabilities and your Company will not be required to make any further contributions.

This concludes my review of the year's operations and I desire to place on record your Board's appreciation of the services rendered by the Mine Manager, Mr. G. S. de Villiers, and his staff, as well as the staff at both the Head and London offices of the Company.

Sweeping footwall fines during reef wall construction at Hartebeestfontein. This photograph appears in the company's Annual Report for 1957

BERALT TIN & WOLFRAM

MR. F. GATES'S SPEECH

The 29th annual general meeting of Beralt Tin and Wolfram, Ltd., was held on November 6 at Winchester House, London, E.C.

Mr. F. Gates, Chairman, presided.

The Chairman, in the course of his speech, said :

We have been fortunate during recent years in having high market prices for wolfram, the average during the last five years having been about 270/- per unit.

During those years the average price realized for the Company's wolfram was about 330/- per unit. This substantial margin of 60/- per unit over the average market price results largely from the two favourable forward contracts concluded with the U.K. and U.S. Governments in 1952. The latter was for a five years period at a high fixed price and only expired at the end of September, 1957. From now on all our wolfram sales will be based on the market price current from time to time plus such premiums as consumers are willing to pay for the high quality of our concentrates.

The Board have tried to keep a fair balance during those years between the proper claims of the stockholders to share in the Company's prosperity and the need to strengthen the Company's position to meet less favourable conditions.

We have built up and maintained a strong cash position, the importance of which, as I shall shortly explain to you, becomes clearer month by month in connection with our efforts to increase production of tin concentrates.

Taxation

These results have been achieved in the face of ruinous taxation. Our profits for the five-year period to which I have referred suffered tax in the United Kingdom and Portugal representing an average rate of over 15/- in the £.

We now have every expectation after consultations with the Inland Revenue, that the steps we have taken, by the incorporation of a subsidiary sales company and otherwise, will secure qualification for the parent company as an Overseas Trade Corporation as from September 14, 1957, and that it will be possible to bring a substantial part of the present tax provision back to credit in next year's accounts as being no longer required.

This matter is still under expert consideration and, as soon as the Board are in a position to assess the amount involved with a reasonable degree of accuracy, members will be advised.

Wolfram Market

You will remember that, when I last addressed you, I spoke of supply and demand in the world wolfram market as being in "somewhat delicate equipoise" and warned you that the fall in the wolfram price, which had already dropped from 262/- per long ton unit at the beginning of April, 1956, to 225/- at the date of the last general meeting, might well be continued.

It has, in fact, continued to a point at which it would be difficult to sell a large parcel of wolfram concentrates at over 100/- per unit and I believe that concentrates of fair quality from the Far East have been sold at less than 90/- per unit.

On the other hand, there are only a few producers, on this side of the Iron Curtain at least, that can continue to mine wolfram at the current price and, provided that the market is not adversely affected by unwise policies as regards disposal of Governmental stock-piles, the lack of offerings and the desire to replenish stocks which consumers have allowed to run down below their normal level may be expected in due course to lead to some recovery in the price.

I do not, however, look for any return in the near future to the high prices of previous years and it would be imprudent to count on it.

The Mine is in a better position than ever before to support an increased production of wolfram, workings during the past year having given most satisfactory indications of large lateral extensions of the ore bodies.

It would, however, be most imprudent to increase wolfram production in present market conditions.

Efforts to Expand Production of Tin Concentrates

Although the margin of profit per ton of tin concentrates is never likely in normal conditions to approach the high level of wolfram profit during recent years, tin concentrates are at to-day's prices worth about £100 per ton more than wolfram concentrates and the relative stability of the tin market, with the protection afforded by the buffer pool, seems reasonably assured.

The Board, therefore, laid plans with the object of increasing the production of tin concentrates, and the rate of production has already risen to nearly 40 tons per month.

In the greater part of the main mine, which has made the major contribution to the Company's recent prosperity, the ore contains very little tin. In other parts the ratio of tin to wolfram in the ore is much larger.

For instance, it is 3 parts of tin to 2 parts of wolfram at Corga Seca, a section which has been extensively mined by the present Company but where there are still useful ore reserves, and at Vale da Ermida, to which I have made frequent references in the past, the ratio is 3 parts of tin to 1 part of wolfram. There is an apparent tendency also for the tin content in the main mine to increase in depth and for that reason work on Level 2 is being stepped up.

As regards Vale da Ermida our engineers advise us that, apart from the selected veins on which recent work has been concentrated, there are many narrow veinlets which could not be mined individually but might well carry sufficient values in total to make the whole hill a suitable subject for a large bulk-mining operation. This possibility —and I emphasize that it is at present no more than a possibility—is being actively investigated.

I come now to Argimela, the tin-bearing property situated some 27 miles distant by road from Panasqueria, which we have acquired by purchase of the share capital of E.M.A.L., a Portuguese company which for some years previously had worked the property by tributing methods. The values in this mine consist almost exclusively of tin and the problem before us is to determine at what tin price the mine can be profitably worked.

It is difficult to form an accurate assessment of the grade of a property like this, where the best values occur in sporadic crystals of cassiterite, without bulk sampling and a test mill with a capacity of up to 100 tons of ore per day, which can be increased if necessary, has been set up and is now in operation. The property has been inspected by an independent geologist who has advised us that it fully merits extensive examination.

It seems improbable that this property will be capable of being worked profitably except on a large scale and it is hardly necessary for me to inform you that the equipping of a mine for a large-scale operation is a very expensive business. Since it is possible, though as yet far from certain, that we may find ourselves with large-scale operations on our hands both at Argimela and Vale da Ermida, it is indeed fortunate that the Company has retained substantial financial resources.

The report and accounts were adopted.

WITWATERSRAND NIGEL

(Incorporated in the Union of South Africa)

The annual general meeting of Witwatersrand Nigel, Ltd., will be held on December 5 in Johannesburg.

The following is the Statement of the Chairman, **Mr. S. F. Dench,** circulated with the Report and Accounts for the year ended June 30, 1957 :—

The tonnage milled during the year was 214,700 tons, which was slightly less than that for 1955/56; the grade of ore milled was 4.460 dwts. per ton, an increase of 0.121 dwts. per ton over the previous year. Working costs, which were 48s. 2d. per ton, showed an increase of 1s. 7d. per ton, which increase is in keeping with that shown by the mining industry generally. The Company's contributions under the various Pneumoconiosis Acts continued to rise.

The development footage amounted to 16,546 feet, which was practically the same as that for the previous year; the percentage of payability was slightly higher at 41.38, but the value of payable development at 373 inch-dwts. was considerably higher than the 242 inch-dwts. encountered last year. Development in the No. 1 Shaft (Houtpoort) Section was continued on a reduced scale and results showed little improvement. The substantial increase in the value of the payable development was due to high grade ore encountered in the No. 7 Shaft (Poortje) Section.

The estimated Ore Reserve at June 30, 1957, was 785,000 tons, averaging 5.1 dwts. per ton over a stoping width of 37 inches. This represents an increase of 47,000 tons and the value is higher by 0.5 dwts. per ton, the width being unchanged. As a result of this rise in value of the Ore Reserve, the grade of the ore milled during the current year has been raised slightly, but the additional revenue obtained thereby is being absorbed by the extra development costs for the necessary work now being carried out in the No. 3 Shaft area.

Sinking operations in No. 3 Shaft proceeded normally and the Shaft reached its final depth of 3,056 feet during June, 1957. The Main Reef was intersected at a depth of 3,053 feet and assayed 9.9 dwts. per ton over a width of 10.1 inches. According to information previously available it was not expected that the shaft would intersect the reef in a payable area and until further work has been

carried out the values encountered must be treated with reserve. A connection has now been effected between this shaft and the bottom of the inclined haulage put down from No. 1 Shaft.

Since the close of the financial year your Company has been granted a mynpacht over 278 morgen on the remaining extent of the farm Poortje No. 123. This is in respect of the area served by the No. 7 Shaft.

The Net Profit for the year was £91,685, which was almost the same as for the previous year. No gold-mining taxation is payable by the Company for the present. Capital Expenditure amounted to £117,392 and was nearly all incurred on shaft sinking.

As was explained to shareholders, it was decided not to declare a dividend in December last, as the Company's funds were required for the capital expenditure involved in the sinking of No. 3 Shaft.

I am pleased to report that the Company won the first prize for Scheme "B" under the Safety First Awards granted by the Prevention of Accidents Committee and I would like to tender my congratulations to every employee on the Mine whose co-operation was necessary in earning this award.

It is with much regret that I have to report the deaths of two Directors, Messrs. R. C. Bromhead and F. E. Wigley. I am also sorry to have to report the resignation from the Board of Mr. L. C. Walker on his retirement from active business. Messrs. C. J. Burns and F. L. Wigley have joined the Board to fill two of the vacancies.

I have pleasure in expressing the Board's appreciation of the excellent services rendered during the past year by the Mine Manager, Mr. G. Abdinor. I would also like to pay tribute to the efficient services rendered by the Technical and Administrative staffs at Head Office and London Office and the employees at the Mine.

SOUTH AFRICAN COAL ESTATES (WITBANK) LIMITED

(Incorporated in the Union of South Africa)

MR. T. COULTER'S REVIEW

The thirty-seventh annual general meeting of South African Coal Estates (Witbank) Limited will be held in Johannesburg on November 26. The following is an extract from the statement by the chairman, **Mr. T. Coulter,** which has been circulated with the annual report and accounts for the year ended June 30, 1957.

Accounts

The gross profit on coal mining was fractionally higher than for the previous year at £406,228.

Sundry revenue, dividends and interest amounted to £24,521. After deducting expenses and a loss of £3,777 on Clewer Township, an amount of £411,844 was carried to appropriation account.

After adding in the unappropriated profit of £115,425 brought forward, a total of £527,269 remained to be dealt with. A provision of £112,163 was made for taxation, £4,000 was appropriated for directors' additional remuneration, and £9,226 for capital expenditure. Unchanged dividends totalling 3s. 9d. per share absorbed £187,500 and in keeping with the policy of setting aside funds for the opening of Landau No. 4 mine, a further £100,000 was appropriated for future capital expenditure bringing the total under this heading to £300,000.

An unappropriated profit of £114,380 was carried forward to the balance sheet.

Operations

The company sold a total of 1,690,592 tons of coal which was a decrease of 16,303 tons compared with the previous year.

Outputs from the company's two producing pits are :—

	Tons
Landau No. 3	1,187,869
Navigation	502,723
	1,690,592

In addition to the above tonnages, despatches of steam coal middlings totalled 171,146 tons during the year, all of which were purchased by the South African Iron and Steel Industrial Corporation, Limited which also took the whole output from the Navigation mine for use as blend coking coal.

Time lost during the year amounted to 107 hours mainly due to the shortage of railway trucks.

Navigation Mine : Preparations will be made during 1958 to increase the sales output of blend coking coal to Iscor with effect from January 1, 1959, to an annual rate of 660,000 tons by 1960. This compares with current sales of approximately 500,000 tons per annum.

Landau No. 3 Mine : This mine worked satisfactorily during the year on a double shift basis. The average working height throughout the mine is about 7 ft. 6 in. Exposures of coal in the advance development show normal Landau quality.

Landau No. 4 Mine : I outlined last year the plans for opening up this new pit. The period which has elapsed since then has enabled a more accurate estimate to be made of probable future demands for coal. It had been intended to bring the new colliery to production during the middle of 1959 in order to allow the company to meet its share of the anticipated increase in the coal trade at that time. Current estimates indicate, however, that Landau No. 3 will be able to provide adequate tonnages to meet probable commitments until the middle of 1960 and the opening up of Landau No. 4 has therefore been delayed for a year.

Owing to continued rise in the cost of certain important items of capital equipment, it is expected that the final cost of the new pit will be somewhat in excess of the £750,000 originally estimated. The postponement of the programme will assist the company to meet this extra outlay from its own resources. Provided profit margins allow, it should be possible to maintain the current rate of dividend and complete the capital expenditure programme with recourse to only short term borrowing.

Although the company enjoyed the benefit of operating for a full year at Landau No. 3 mine under the improved coal prices granted in November, 1955, the gradual increase in costs which has taken place has again focused attention on the necessity for an early adjustment in the price of coal.

During the year certain increases became operative in respect of native wages. The company assumed additional liabilities under the Pneumoconiosis Act No. 57 of 1956 and a number of other factors combined to bring about a significant rise in working costs.

The question of profit margins and the price of coal is receiving general attention throughout the industry, and it is hoped that in the event of the matter being placed before the Price Control Authorities they will view the position sympathetically.

The railway truck position deteriorated seriously towards the end of the financial year and transport difficulties continued during August and September.

In order to meet the position it was necessary for the industry to resort to increased road haulage which at one stage was moving coal at the alarming rate of about 3,000,000 tons per annum.

While it is known that the Railways are making great efforts to meet the country's transport requirements, and that planning has been completed for substantially increasing the capacity of the main line which serves the Witbank coalfield, it cannot be said that a return to normality is immediately in sight.

Copies of the annual report and accounts are obtainable from the London Office of the Company, 40 Holborn Viaduct, E.C.1.

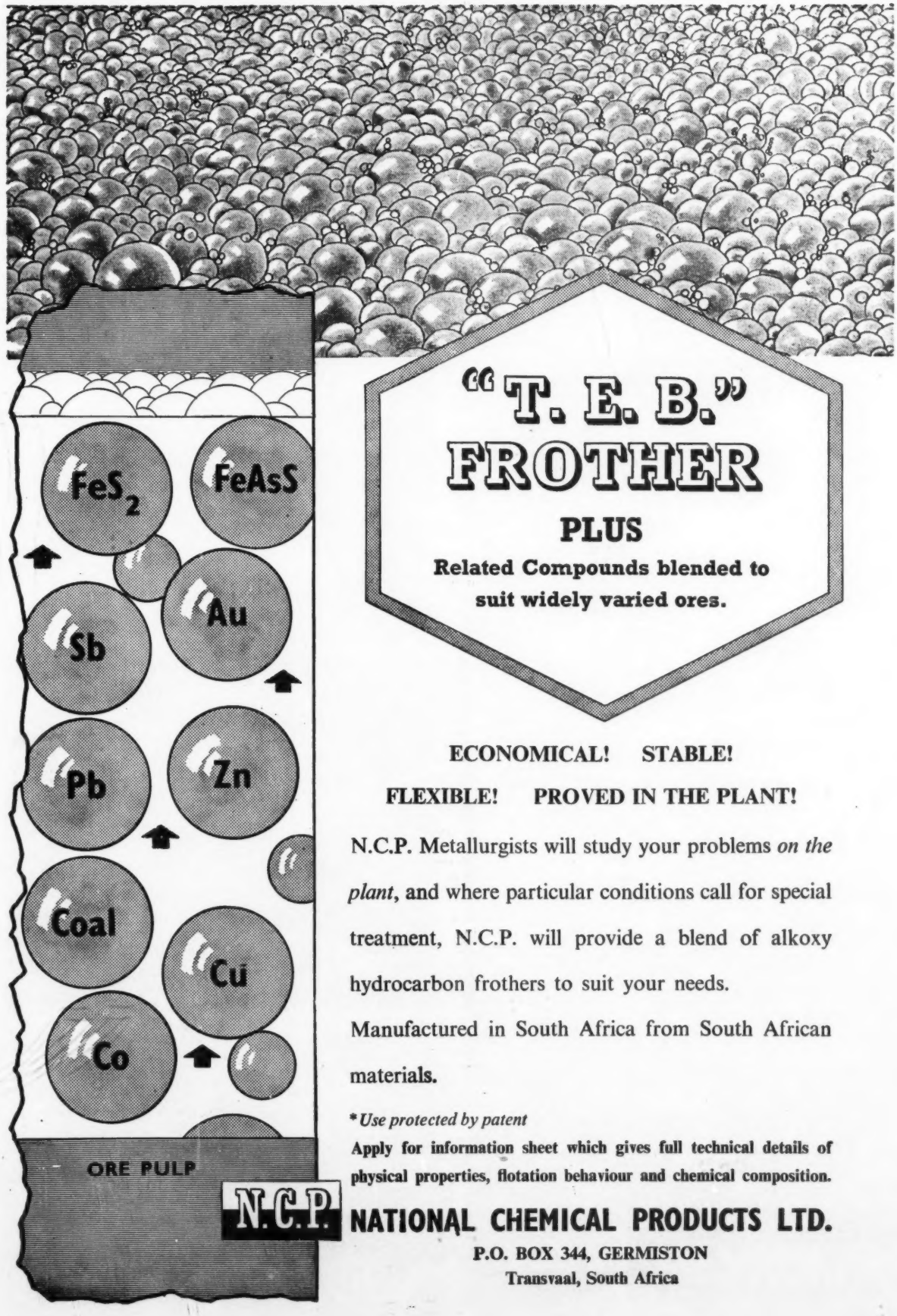
Financial News and Results

Waverley's First Full Year.—From their first full year of operations at the old Glenluce Shaft of "Knights", Waverley Gold Mines made a profit of £8,931, sufficient to wipe out their accumulated loss from the previous years. The chairman, Mr. S. L. Segal, in his circulated statement revealed that, after selling four mynpachten to the Primrose Co., Waverley is left with a claim area sufficient to sustain two further small mines. Meeting, Johannesburg, November 28.

North Kalgurli's Better Year.—North Kalgurli (1912) have issued preliminary figures revealing an extremely healthy state of affairs.

Profits before tax in the 52 weeks ended March 31, 1957, were slightly lower than in the previous period (£107,395 against £109,718) but the 1957 figure includes £7,816 of expenses incurred in the one-for-four rights issue last year. The interesting feature of the accounts is the charge for taxation. In the year to March, 1956, this amounted to £58,143, but in the year under review the allocation was reduced to £35,042 by backdated O.T.C. provisions relating to profits tax only.

It thus appears that the current year's profits will, to all intents and purposes, be tax-free. The dividend recommended on the increased capital is 9d. (against 6d. on the old capital last year), absorbing £71,157, and £21,991 is carried forward after transferring £33,540 to reserves.



"T. E. B." FROTHER

PLUS

Related Compounds blended to suit widely varied ores.

ECONOMICAL! STABLE!

FLEXIBLE! PROVED IN THE PLANT!

N.C.P. Metallurgists will study your problems *on the plant*, and where particular conditions call for special treatment, N.C.P. will provide a blend of alkoxy hydrocarbon frothers to suit your needs.

Manufactured in South Africa from South African materials.

* *Use protected by patent*

Apply for information sheet which gives full technical details of physical properties, flotation behaviour and chemical composition.

N.C.P. NATIONAL CHEMICAL PRODUCTS LTD.

P.O. BOX 344, GERMISTON
Transvaal, South Africa

THE RENONG TIN DREDGING COMPANY

SIR JOHN HAY'S REVIEW OF ACCOUNTS AND MINING OPERATIONS

The 44th Annual General Meeting of The Renong Tin Dredging Company, Limited will be held on November 27 at 52/54 Gracechurch Street, London, E.C.

The following is an extract from the circulated statement of the chairman, **Sir John Hay** :—

Profit before tax for the financial year ended June 30, 1957, as shown in the Profit and Loss Account, amounted to £58,204—a fall of £59,564 compared with that secured for the previous year. I warned Shareholders in my last address that returns from our Rasa area would be at a low level in the year now under review.

For nine months of the year No. 2 Dredge was working a passage through shallow hard ground into its new operating area. Progress as anticipated was slow, the Dredge not having been constructed to break up such rough and heavy ground. The ground contained only meagre quantities of recoverable tin and working costs consequently exceeded revenue. The alternative would have been to dismantle the Dredge and transport it to the new area for re-erection there. That procedure, notwithstanding the loss incurred by dredging through to the new site, would have been infinitely more costly. Thus, although profits suffered, a formidable task was in fact economically accomplished and the course adopted fully justified by the result.

No. 3 Dredge, which is reworking tailings, was not expected to repeat last year's performance, when the output was fortified by the inclusion of small virgin patches of ground containing good values. Virgin patches encountered this year were fewer, but returns were better than we expected and yielded a satisfactory surplus. The output from the Rasa Dredges totalled 321 tons against 463 tons for 1955/6.

The greater proportion of our revenue on this occasion came from Jinjang, where recoveries, I am happy to say, showed a substantial increase over those of preceding years. This was due in part to the higher content of ground worked, but also to greater efficiency in the recovery of ore from heavy clay in the treatment plant.

Outcome of Year's Operations

The profit of £58,204 is struck after charging the full working costs of No. 2 Dredge, which included a heavy bill for repairs and renewals. You will notice that repairs to Dredges at £67,682 was considerably in excess of the previous year's expenditure of £41,286. In the current year, repairs should run at a more normal rate.

We reaped substantial benefit from the concessions to Overseas Trading Corporations provided under the last Finance Act, which permits the release of £21,000 from taxation provision, a timely offset against the abnormal debits to revenue to which I have referred. We are thereby enabled to recommend a final dividend of 9d. per 2/- unit free of tax on the Ordinary Stock, leaving £37,147 to be carried forward against £34,191 brought in.

An express condition of the mining lease granted us by the Malayan Government over the new area, involves substantial river training works, including the construction of three weirs and extensive bunding. Expenditure in 1956/57, which we have charged against Reserve for Renewals, etc., amounted to £23,570. To complete these works it is estimated that further expenditure of approximately £25,000/£30,000 will be required.

Current Prospects

None of our Dredges will, according to their cruising schedules, be likely to meet ground carrying exceptional values in the current year. The indications are that, in the main, the recoverable content of ground to be treated will be somewhat below the average obtained over the past few years.

Variations in tin content are normally of lesser moment however than fluctuations in the price of tin. Already the market price is well below the average for last year and it is too early yet to express an opinion as to the effect on the demand for tin of the deflationary financial measures adopted both here and in the United States. Other base metals have fallen heavily in price, but the underlying position of tin is masked by operations of the Buffer Stock.

Made from tough-as-steel fibreglass and thermo-setting polyester resin, the " Toughguard " is the only fibreglass helmet which is supplied with the new Panorama patented polythene adjustable harness. This ingenious permanent harness completely outmodes the standard leather type which calls for frequent replacement. Because of its ingenious design it fits into a standard sized helmet—yet is so adjusted that it will fit any head from size 6½ to 8. The Panorama " Toughguard " exceeds all Government specifications for impact, penetration, etc., and is now being tested to American Federal specifications.

NEW PANORAMA "TOUGHGUARD" FIBREGLASS MINER'S HELMET with Polythene Adjustable Harness

★ *Easy to wear — lightweight, comfortable, cool and ventilated.*

★ *No metal parts — special polythene suspension.*

★ *Water, mildew and fungus-proof.*

★ *High dielectric resistance.*

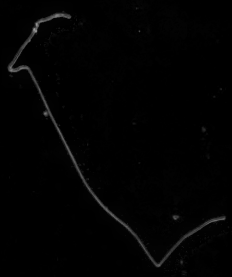
★ *Replacement of harness never necessary ; easily sterilized.*

★ *One size for all heads—saving time and inventory keeping.*

★ *Available in white, black, red, green, grey and yellow ; no chinstrap needed.*

★ *Can also be supplied fitted with miner's lamp brackets and cable clips.*

Descriptive leaflets will gladly be sent on request

PANORAMA

PANORAMA EQUIPMENT LIMITED,
Panorama House, 29/36 Seymour Mews, Wigmore St., London, W.1.
WELbeck 2871